

MEYE GUIDE¹

Guide of proposals and didactic resources for learning mathematics in early ages

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Special thanks to Małgorzata Żytko, Ana Ancheta Arrabal and Carlos Segura Cordero for their help in supervising the activities of this product.

MATHEMATICS IN EARLY YEARS EDUCATION (MEYE) 2019-1-ES01-KA203-065986.

This project has been funded with support from the European Commission. This publication reflects the views only of the CIPFP FAITANAR, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

This guide has been elaborated on the basis of the work carried out over three years by the teachers and students of the entities participating in the Erasmus + MEYE project “Mathematics in Early Years Education” 2019-1-ES01-KA203-065986.

- CIPFP Faitanar
- Agrupamento de Escolas Marcelino Mesquita do Cartaxo
- Gimnazija Celje – Center
- Universitat de València
- Cefire Ctem
- UNIWERSYTET WARSZAWSKI
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During this time and on the basis of discussion, exchange of knowledge and points of view, agreement on the underlying methodological principles, the work of VET students and the implementation of activities in Spanish, Slovenian and Portuguese nursery schools, we have come up with the following proposal which we hope will be useful for professionals working with early childhood education students.

We thank the following schools for opening their doors for our VET students to carry out activities that have allowed us to specify and improve many of the proposals in this Guide:

- Jardim Infância Cartaxo
- CEIP La Constitución de Quart de Poblet
- Escuela Infantil Príncipe Valiente de Manises
- Vrtec Zarja Celje

For the classification of the activities proposed in this guide, the pedagogical moments described in the MEYE Curricular Design (elaborated by Ana Ancheta Arrabal, Universitat de València), another of the products of this project, have been used.

 Babies who can count (up to 18 months)







 Little explorers (from 18 to 36 months)







 Playing specialists (from 36 months to the entry in primary education)












BABIES WHO CAN COUNT

Up to 18 months

Name of the activity	Provocations						
Pedagogical moment	<p>● Babies who can count from 5/6 months to 18 months. Little explorers from 18 to 36 months.</p>						
Content logical-mathematical	<ul style="list-style-type: none"> - Quality: textures, temperatures, colours, shapes, etc. - Quantity: many, few, all, some, none. - Number: 1, 2, 3. - Measurement: space (inside/outside, above/below, in front/behind, etc.), magnitude (big/small, wide/narrow, long/short, empty/full, light/heavy). 						
Approach to the activity	<p>A provocation is an invitation, a suggestion, placed in a space in the classroom that invites the children to participate, to take an interest in what is prepared, to explore it, to use it and therefore to learn through discovery.</p> <p>In each provocation, different materials are selected according to the needs and interests previously observed in the classroom, preferably natural materials or materials that provide different sensory information, that combine with each other and that allow for expression.</p>						
Materials	<p><u>Examples of proposals and materials</u></p> <ul style="list-style-type: none"> From 5/6 to 12 months: <table border="1"> <thead> <tr> <th>Image</th><th>Materials</th></tr> </thead> <tbody> <tr> <td></td><td>Spaghetti and food colouring.</td></tr> <tr> <td></td><td>Seasonal food.</td></tr> </tbody> </table>	Image	Materials		Spaghetti and food colouring.		Seasonal food.
Image	Materials						
	Spaghetti and food colouring.						
	Seasonal food.						

		Sensory bottles and wooden bases.
		Strips of paper
		Small plastic balls and tape
	<ul style="list-style-type: none"> From 12 to 24 months: 	
	Image	Materials
		Food pasta in different shapes (spaghetti, spirals, macaroni, etc.).
		Leaves, branches and pinecones.
		Recycled elements: jars, bowls, bottles, plastic and metal lids, spoons, paper, cardboard, fabrics...

	<ul style="list-style-type: none">From 24 to 36 months:								
	<table><tr><th>Image</th><th>Materials</th></tr><tr><td></td><td>Unstructured objects, containers, white paper with drawings.</td></tr><tr><td></td><td>Baking paper, clay, natural elements (leaves stones, twigs, etc.)</td></tr><tr><td></td><td>Toy animals, small wooden logs of different heights and widths.</td></tr></table>	Image	Materials		Unstructured objects, containers, white paper with drawings.		Baking paper, clay, natural elements (leaves stones, twigs, etc.)		Toy animals, small wooden logs of different heights and widths.
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	Baking paper, clay, natural elements (leaves stones, twigs, etc.)								
	Toy animals, small wooden logs of different heights and widths.								
Educator's role	<p>The possibilities for play in the provocations vary depending on the material and age.</p> <p>However, in any proposal, the educator will observe and accompany the game. In addition, he/she should verbalize the actions carried out in order to make them explicit and favour the internalization of new knowledge, and ask questions such as: "What objects are there? What objects are you playing with, What colour is it, Are there many or few, Is it big or small, Is it bigger than... or smaller than..., How many are there, What colour is it..., Is it cold/hot, Is it soft/hard, etc. "</p>								

Name of the activity	Circle/ Assembly*
Pedagogical moment	<p>● Babies who can count from 12 to 18 months Little explorers from 18 to 36 months.</p>
Contents logical-mathematical	<ul style="list-style-type: none"> - Orientation in space. - Correspondence of child and cushion. - Following an order. - Introduction to counting and estimation. - Sequencing routines.
Approach to the activity	<p>The circle or assembly routine allows a multitude of approaches to mathematical concepts. The simple act of standing in the circle already involves tackling spatial concepts ("stand next to...", or "between... and...", etc.). Each child has his/her own cushion, which must be placed in such a way that everyone can see each other (in the shape of a semicircle or U).</p> <p>Children play with different settings, for example:</p> <ul style="list-style-type: none"> - pass a doll to each other in turn (pass to friend/colleague next to them) - they can also swap places (sit next to each other children who have the same cushion) <p>With 1 and 2 year olds, we begin by taking the register with the help of a classroom mascot, which each child greets and passes to the one next to him/her.) This is used to accompany the action with the language: "Give it to..., who is sitting next to you". To pass the mascot, an order is followed to make sure that everyone has been able to greet the mascot.</p> <p>One of the main activities in the circle is storytelling. There is a wide variety of stories that bring us closer to mathematical intuitions. Beyond the story we use, the interesting thing is that the adult incorporates the idea that, through illustrated albums, chosen according to the quality of their illustrations and the story they present, we can facilitate the learning of mathematics. For example, the story "Moon", from Kalandraka, by Antonio Rubio and Oscar Villán, presents a repeating pattern (moon, moon, sun) and encourages the discovery and repetition of patterns.</p>

With children from 2 to 3 years old, instead of passing the mascot, each day a child can be in charge of counting heads with a wand. The arrangement of the children is the same, so that all of the children can see each other, to make it easier to establish order in counting. It is easier if the children are placed in a U-shape or semicircle, because if the children are placed in a circle, it is more difficult to keep track of where the counting starts and where it ends. To avoid this, if we arrange ourselves in a circle, we can also give clues, such as the teacher being the beginning or the end of the counting (a significant person for all the children).

The aim is not for the children to count correctly, but to provide a meaningful situation in which it makes sense to practice counting to determine how many we are, if someone is missing, or how many are missing. The execution varies throughout the course. At the beginning, the educator supports the counting; later on, the children end up assigning a number label (a numeral) to each child in the group. Usually this process of emergent counting is accompanied by errors when dealing with quantities that are too large for them. Errors in reciting the sequence 1, 2, 3, 4, 5, 8, 9, 5, 6... are common and the children are not yet aware of the principle of cardinality: the last numeral recited represents the number of peers counted. The result of the counting process, the cardinal, must have a corresponding representation.

For this, it is useful to use some kind of manipulative material, for example, blocks symbolising different numbers (NUMICON), or concrete objects to count (Figure 1).






Figure 1. Examples of NUMICON blocks.



During the circle time they talk and organise the day. In other words, activities are sequenced, including routines. To help in this organisation, we can use a panel with pictures of the main activities that the child will order in a time series (first, then, before, last...). Starting at the top of the panel, the photos representing the situations that occur during the day are arranged in order. As always, mistakes are opportunities for the child to evolve. Apart from the person in charge of carrying out this activity, the rest of the classmates are active subjects

	who can suggest and help, or simply observe and learn from the model offered by the other.
Materials	<ul style="list-style-type: none"> • Cushions • Mascot • Stories • Wand • Manipulative counting materials • Panel for pictures of routines • Photos of classroom routines
Educator's role	<p>The educator should arrange the space and materials in a way that is conducive to the proper development of the routine. The educator should act as a guide in the different parts of the assembly, taking advantage of the opportunity to introduce the children to the possible logical-mathematical contents. In addition, he/she will observe the children's responses in order to assess what they have learned.</p> <p>*Based on De Castro Hernández, C & Flecha Lopez, G "Provocations of mathematical intuitions through play from 0 to 3 years"</p>

Name of the activity	Outdoors playtime*
Pedagogical moment	<p>● Babies who can count from 12 to 18 months. Little explorers from 18 to 36 months</p>
Contents logical-mathematical	<ul style="list-style-type: none"> - Quality: textures, temperatures, colours, shapes. - Quantity: much/ little, everything/ nothing, more/less. - Measurement: space (in/out, above/below, front/back, etc.), magnitude (large/small, empty/full, light/heavy).
Approach to the activity.	<p>In the playground, common materials are usually cubes, shovels and sand, ideal elements to start in the intuitions related to quantity, measurement, weight, or capacity. Having different containers for the sand allows the child to have the opportunity to check that there are containers that can contain the same amount, that others contain less or more, or that some of the containers are more difficult to fill than others to make cakes or sand castles. The development of these intuitions, with continued use, makes the child decide to use one or the other depending on what he/she wants to do. Many resort to smaller containers, as the filling process is faster, since their purpose is to dump them to make sand castles. Containers can also be compared in capacity, by introducing one into another and also by transferring their contents. In the classroom, you can carry out activities of a similar type, with containers and contents, using other materials that depending on their characteristics enhance the establishment of one type of relationship or others. Thus, it is not the same to provide flour, water or breadcrumbs than to give objects such as stoppers, corks or stones of similar size. The former are continuous (non-countable) materials, while the latter can be treated separately, one by one, as is the case with discrete materials, which are the basis for the idea of unity and for counting.</p>
Materials	<ul style="list-style-type: none"> • Garden sand. • Plastic materials: pallets, buckets, rakes, containers, containers, animal figures, etc. • Natural materials: stones, sticks, wood, shells, etc. (of different sizes and shapes). • Kitchen materials: colanders, moulds, tubes, spoons, funnels, etc.

	 
Educator's role	<p>Will have an attitude of observation and accompaniment. In addition, the actions carried out to make them explicit and favour the internalisation of new knowledge must be verbalised. Besides, he/she will launch questions such as: "Which cube is larger, red or blue? Have you filled the whole bucket? Does the full container outweigh the empty one?"</p> <p>*Based on De Castro Hernández, C & Flecha Lopez, G "Provocations of mathematical intuitions through play from 0 to 3 years"</p>

Name of the activity	Matching colours
Pedagogical moment	<p>● Babies who can count from 12 to 18 months. Little explorers from 18 to 36 months.</p>
Contents logical-mathematical	<ul style="list-style-type: none"> - Correspondence: objects of different colours with their respective coloured paper. - Quantity: many, some, none. - Colours: blue, yellow, green and red.
Approach to the activity	<p>We lay out the different coloured papers on the floor (blue, yellow, green and red) and explain the activity. They have to look for objects in the classroom that are blue, yellow, green and red and place them on the paper of the same colour.</p>
Materials	<ul style="list-style-type: none"> • Coloured papers (yellow, green, blue and red). • Scissors to cut the paper in smaller parts if necessary. 
Educator's role	<p>We explain the activity and when they all understand it, we just observe and motivate them with good messages and sometimes ask questions like "What colour is that object?", "Where can we put this object?"...</p>

Name of the activity	Tracing the line
Pedagogical moment	<p>● Babies who can count from 12 to 18 months. Little explorers from 18 to 36 months.</p>
Contents logical-mathematical	<ul style="list-style-type: none"> - Lines and shapes: straight line, wavy line, zigzag line, circles and letters. - Orientation in space. - Following the lines and shapes. - Quality: textures.
Approach to the activity	<p>Beforehand we prepare some materials (cardboard or others) where we have drawn, written or carved some letters, shapes or lines. We place the material on the floor so that the children can get close to it and do the activity.</p> <p>We explain the activity to them: they have to follow the trace of the lines, shapes or letters with their fingers or hands. We let them do it as they wish.</p>
Materials	<ul style="list-style-type: none"> • Cardboard. • Marker pens • Cutter. <div data-bbox="517 1328 919 1610" data-label="Image">  </div> <div data-bbox="1026 1339 1297 1610" data-label="Image">  </div>
Educator's role	<p>We will explain the activity and when they have all understood it; we will just observe and motivate the kids with positive messages such as "Well done!" or "Good job!" We will also ask them questions like "What does this line look like? Do you think it looks like a snake?", "What does this shape look like? Does it look like a ball?".</p>

Name of the activity	A box with four-shaped holes
Pedagogical moment	● Babies who can count from 12 to 18 months. Little explorers from 18 to 36 months.
Contents logical-mathematical	<ul style="list-style-type: none"> - Correspondence: shape and hole. - Geometric shapes: square, circle, triangle and star. - Quality: colours. - Measurement: space "inside/outside".
Approach to the activity.	<p>We place the star shapes, circles, squares and triangles on the floor or on a table, and then tell the children to choose one and try to fit it into its respective hole. When they run out of shapes, they can lift the box (which has a hole underneath) and pick up all the shapes to play again.</p> <div data-bbox="442 1021 769 1299" data-label="Image"> </div> <div data-bbox="793 1032 1165 1299" data-label="Image"> </div>
Materials	<ul style="list-style-type: none"> • A big box. • Scissors and/or cutter to make the shapes • White paper. • Cardboard. • Paints (White, yellow, red, blue and green) to paint the shapes
Educator's role	<p>First we explain the activity, when everything is understood, we will just observe and motivate the children by telling them positive messages like "Well done!" or "Good job!". We will also ask questions such as: "What shape is this?" "Why the star doesn't fit here?" "What colour is the circle?" "Where is the triangle, inside or outside?"</p>

Name of the activity	Paper Hunt
Pedagogical moment	<ul style="list-style-type: none"> ● Babies who can count from 12 to 18 months. Little explorers from 18 to 36 months.
Contents logical-mathematical	<ul style="list-style-type: none"> - Measure: space ("up", "down", "above", "below", "near", "far". etc.). - Orientation in space. - Quality: colours.
Approach to the activity	<p>First, we will prepare the materials with the help of the children: we will shred different coloured papers. The educator will hide the papers around the classroom or playground without the children seeing them. Then we will tell the children to go and get as much paper as they can. When they bring it to us, they will have to say the colour of the paper and then they can go on hunting again.</p>
Materials	<ul style="list-style-type: none"> • Colour paper
Educator's role	<p>After explaining the activity, we will observe and encourage the children to find the papers with positive messages such as "Let's find the papers!", "Good job!", "Well done!" and ask questions such as: Did you find this paper near or far away? Where was this paper, below or above the table? What colour is this paper?"</p>

Name of the activity	Introduction to cardinality
Pedagogical moment	<p>● Babies who can count from 12 to 18 months Little explorers from 18 to 36 months Playing specialist from 3 to 6 years old</p>
Contents logical-mathematical	<ul style="list-style-type: none"> Quantity with qualitative criteria (there is, there isn't, a lot, a little, none). Cardinality (number as quantity, cardinal number). Comparison of sets (more than, less than, equal).
Approach to the activity	<p>Levels:</p> <p>There is / There isn't (1-3 years) Children are given a container and have to recognise whether or not it contains items:</p> <ul style="list-style-type: none"> By the sound of the box. Closed boxes and secretly look to see if there are any or not. With their eyes closed, detect whether it weighs or not. <p>Few / Many (2-4 years) The children are given several containers, with a variable number of objects and they can clearly estimate that there are differences in the quantities (e.g. a jar with one ball, and a jar with 8 balls). They are asked to discuss among themselves whether there are too many or too few items in the containers.</p> <p>Less than / more than (3-6 years) The idea to be worked is less than / more than.</p> <ul style="list-style-type: none"> Any material is suitable for children to compare. What does it mean that there are more? What does it mean that there are less (without counting)? Matching the elements of one set with another, and if there are more elements in one set, it means that there are less in the other one. Stories can be used to contextualize the comparisons and work on them within a narrative.

Coordination between ensembles (3-6 years)



Similar to the previous one, but this time pairs of sets with the same number of elements are distributed in a disorderly way around the class or playground (for example, two plates with 4 balls, two plates with 6 balls, etc.). The children must find the partner of each set. If they do not know how to count, they must establish element-to-element correspondences: they will have the same cardinal (number as quantity) when each element of one set can be paired with an element of the other set, and there is not any left, neither in one set nor in the other. Finally, each pair representing a quantity can be assigned a meaningful pattern (3-ball plates, a drawing of the three little pigs; 8-ball plates, a drawing of a spider, etc.).

Materials

Containers (plates, boxes, bags) and objects (everyday, from nature, etc.), which will be the elements of the set.



Educator's role	<p>Designing the materials, distributing them among the children. Supervising that there is a mathematically meaningful exploration of the materials.</p> <p>Formulating questions with didactic potential, progressively, to contribute to the construction of the idea of quantity and, later, of cardinal number.</p>
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Name of the activity	Cubes and animal paws
Pedagogical moment	<p>● Babies who can count from 12 to 18 months. Little explorers from 18 to 36 months.</p>
Contents logical-mathematical	<ul style="list-style-type: none"> - Quality: shapes and textures (animal paws). - Quantity: None, plus-minus, many-few, etc. - Number: 1,2,3,4 and 5. - Geometric shapes: square and cubes. - Operational relations with cubes: stacking, grouping, sorting, etc. - Correspondence: paw with animal. - Measurement: space (up-down/to one side-to the other side, etc.) and sizes (big and small).
Approach to the activity	<p>This is a free play proposal. On the one hand, the children are offered cardboard cubes of different sizes and colours on which they can carry out different actions: stacking, grouping, sorting by size, etc. On the other hand, they are offered drawings of different animal tracks so that they can explore the variety of sizes, shapes, quantities, etc.</p> <p>To carry out the activity, the large group is divided in two, each subgroup plays with one of the materials and when they get tired they swap the game.</p> <div style="display: flex; justify-content: space-around;">   </div>
Materials	<p>For buckets:</p> <ul style="list-style-type: none"> • Coloured cardboard. • Scissors. • Tape. <p>For the paws:</p> <ul style="list-style-type: none"> • Cardboard. • Paints

	<ul style="list-style-type: none"> • Marker pen. • Scissors. • Glue • Materials with textures (cotton, felt, ...)
Educator's role	<p>He/she will prepare the materials. For the paws, it is important to include different textures to represent reality as much accurate as possible.</p> <p>While the activity is taking place, she/he should observe the children's play and make statements/provide information or ask questions that help the children to internalise the logical-mathematical content. For example: "Look, this paw doesn't have any toes", "Do you think this cube is bigger than this one", "Which animal does this paw belong to", "Which paw has more toes", etc.</p>

Name of the activity	Puzzles*
Pedagogical moment	<p>● Babies who can count from 12 to 18 months. Little explorers from 18 to 36 months.</p>
Contents logical-mathematical	<ul style="list-style-type: none"> - Quality: textures, colours, shapes, etc. - Quantity: all, none. - Number: 1,2,3. - Measurement: space (inside/outside, above/below), magnitude (big/small, wide/narrow, long/short). - Geometric shapes: circle, square.
Approach to the activity	<ul style="list-style-type: none"> • <u>From 12 to 24 months: Less than four pieces.</u> <p>The best thing to do when they are babies is to show them a puzzle of 2 or 3 pieces that has been done, then separate the pieces and show them that in order for the initial image to reappear they have to put the pieces together.</p> <p>As for the subject matter, animals or geometric figures are examples of good illustrations suitable for children of this age.</p> <p>The best ones are the magnetic puzzles, those that show simple shapes and solid colours, large figures that are easily recognisable by children and have enough volume for them to grasp the pieces.</p> <p>Wooden puzzles are the most resistant and are pleasant to the touch for the youngest children.</p> <div data-bbox="798 1489 1189 1668" data-label="Image"> </div> <p>Sensory puzzles with sound pieces or visual effects are also interesting.</p> <div data-bbox="758 1825 1133 2004" data-label="Image"> </div>

Another alternative are the **sound puzzles**, which reproduce the sounds of the shapes that the children fit together when they get them right.



- At 24 months: between four and six pieces.

If the child has been playing with matching games since 12 months, at this age you can offer them puzzles of 4 to 6 pieces, both wooden and thick cardboard, as long as the size of the pieces remains large.



At this point, they can be shown **scenes or figures with bright colours** and richer detail, although the illustrations should remain simple and the lines of the drawing should be well defined.



You can also broaden the subject matter and provide them with **scenes of routine habits or familiar scenarios** that are easily recognisable to them.



- From 24 to 36 months: between 6 and 12 pieces.

Throughout the second year, children can also begin to do puzzles with levels or several layers more or less on their own.



At this age, children can also start to form **cardboard puzzles**. There are giant models, XXL-size puzzles that can be set up on the floor.



There are also **duo puzzles** with figure or concept association activities.



Texture and transparency puzzles continue to arouse their interest and curiosity even at this age.



Educator's role

He/she will have an attitude of observation and accompaniment. In addition, he/she should verbalise the actions carried out by the children in order to make them explicit, as well as ask questions to favour the internalisation of new knowledge: "Where can you put that piece? Do you think it goes on top or underneath? Have you put all the pieces in?"

How many are left? Is it smooth or rough? Is there a circle? What colour is the tree?"


Another interesting idea is to encourage children to work in pairs.

*From

<https://www.jardincaramelo.cl/wp-content/uploads/2019/07/junio-julio-2019.pdf>

Name of the activity	Snack time*
Pedagogical moment	<p>● Babies who can count from 12 to 18 months. Little explorers from 18 to 36 months.</p>
Contents logical-mathematical	<ul style="list-style-type: none"> - One-to-one correspondence (piece of fruit - child). - Follow an order. - Numbers: up to 3.
Approach to the activity	<p>At snack time, the children take a piece (or several) of fruit. We can take advantage of it to approach a mathematical task such as distributing.</p> <p>The fruit will be prepared in a bowl and a child will distribute it among his peers. Each child should be given a piece of fruit, which is a one-on-one correspondence. Also, at this time, mistakes can be generated that we can take advantage of. For example, it may happen that when distributing the fruit (as it happens in a correspondence, an enumeration, or in the count) some child is skipped. Here the placement of children influences in a remarkable way. The educator can show the importance of following the order and check if each child has a fruit. We can also be the ones who generate mistakes, or learning opportunities, putting less amount than necessary and asking the one who has distributed to go for the pieces that are missing from the kitchen and ask the cook for them.</p> <p>To make it manageable by the child, there will be small amounts (up to three, for example) and will be supported by comments such as "you have to bring one to... and another for..."</p> <p>When distributing, there are basically three strategies: go to the bowl for a piece and give it to the partner, take several pieces and go distributing them and, finally, take the whole bowl and go giving a piece to each of the companions. We consider that all three strategies are valid, although the last one is the most efficient and the one that causes the least amount of mistakes.</p> <p>During the distribution, the adult is a mere observer who will intervene only if the child does not know how to find a solution. He/she can offer clues and encourage other children to help, but without giving the correct answer unless necessary.</p>

	<p>It is important to allow children to invent their own strategies to solve problems and intervene to help as little as possible (only as strictly necessary) and indirectly.</p> <p>This activity would be focused on children from 2-3 years old. For children from 1-2 years old it can be done with greater support from the teacher, accompanying in the distribution, or giving greater instructions. Also in this age group, situations can be prepared in which the number of fruits does not correspond to the number of children. The idea is to offer opportunities to explore the correspondence one by one in a natural way perfectly integrated into the day to day of the classroom.</p>
Materials	1 bowl and chopped fruit (1 piece per child).
Educator's role	<p>Included in the development of the activity.</p> <p>*Based on De Castro Hernández, C & Flecha Lopez, G "Provocations of mathematical intuitions through play from 0 to 3 years"</p>

Name of the activity	Treasure basket
Pedagogical moment	● Babies who can count from 5-6 months (as soon as the child can sit up) to 12 months.
Contents logical-mathematical	Property of objects: size, length, texture, weight, shape.
Approach to the activity	<p>We provide children with a low-sided basket filled with a variety of natural and everyday household items. The items should offer a wide range of different textures, weights, colours, shapes and sizes and will be explored by a seated baby because at this stage of their development, children are fascinated with the physical qualities of objects. With this activity they can begin to learn a range of abstract concepts (such as smoothness, heaviness, roughness as well as recognising differences and similarities between objects). It is recommended to add and change items regularly in order to make it even more appealing to children. Besides, to have items that offer some of the following characteristics (it may be that some items cover more than one):</p> <div data-bbox="860 1249 1275 1538" data-label="Image">  </div> <ul style="list-style-type: none"> • Smooth • Rough • Rigid • Flexible • Soft • Shiny • Cold • Heavy • Lightweight • Hollow • Round Angular
Materials	<ul style="list-style-type: none"> • A low-sided basket. • Wooden items: wooden spoon, wooden scoop, egg cup, curtain ring, pegs, spatula, small wooden bowl or dish, various small brushes (pastry brush, nail brush etc. all new/clean), wooden blocks / shapes

	<ul style="list-style-type: none"> • Metal items: metal spoon, small metal whisk, set of measuring cups, measuring spoons, a ladle, tea strainer, mini sieve, metal scoop, small metal bowl or dish, large bolts (new/clean)... • Natural objects: coconut bowl, bamboo straw, pine cones, feathers, loofah (natural, unbleached), sponge (natural, unbleached), shells, pebbles, conkers, an orange, a lump of wood (without splinters).. • Fabric items: leather gloves, silk scarves, socks, a lump of wool, felt, hair scrunchies, velvet, sheepskin swatch, a shoe... • Other items: scourer, sandpaper, cotton wool, bubble wrap, large necklaces, tennis balls, ping pong balls, golf balls, shakers, pocket mirrors for make-up...
Educator's role	<p>He/she will observe the children's interaction with objects, encouraging them to manipulate them and asking questions like "Is the sponge soft?. Is the metal scoop shiny? Is the spoon cold? Is the bowl heavier than the feather? Look, Ana is putting the peg through the curtain ring"</p> <p>It is important to understand that every day, household and natural items are not designed as toys and require adult supervision at all times. Babies should never be left without supervision when interacting with a treasure basket if it includes any items that are not certified toys.</p>




LITTLE EXPLORERS

From 18 to 36 months

Name of the activity	Order in the classroom
Pedagogical moment	▲ Little explorers 18 to 36 months
Contents logical-mathematical	<ul style="list-style-type: none"> - Orientation in space. - Groupings. - Qualitative classifications. - Correspondence of materials and the place where they should be kept.
Approach to the activity.	<p>Routines provide opportunities for mathematical learning. After playing, there is time to put toys away and leave the classroom in order.</p> <p>Here we have a mathematical activity: putting away the toys in the classroom means grouping them together, selecting objects of one type (cars), making simple classifications according to the type of object (cars with cars, constructions with constructions, or dolls with dolls). At the same time, children have to coordinate the type of objects to be stored with the number and characteristics of the containers they use to store the toys, they have to orient themselves in space and correctly distribute the materials in containers. Sometimes they even have to use some kind of symbolisation, storing the spoons in a basket next to which there is a drawing or a picture of a spoon.</p> <p>For this to be possible, the classroom must have a clear organisation that the child can take on board. We distribute the space into small, but at the same time clearly defined play areas that allow the child to mentally structure the space in which he or she normally plays.</p> <p>Order in the classroom is essential for the child to know where to find each object at all times. This is the main purpose of classification: to store things so that we always know where we have them and can retrieve them quickly when we need them. We often do sorting activities with infants and toddlers in which they have to put small materials in boxes. These activities are incomplete, as they do not usually have the spatial organisation component of putting objects into boxes, which, also, have a location within a space such as the classroom.</p>
Materials	Material specific to each classroom.

Educator's role	<ul style="list-style-type: none"> - Organise the classroom in a clear and child-friendly way. - Observe the children's behaviour and guide them if they are not yet autonomous enough to carry out the actions. - Verbalise actions related to logical-mathematical notions in order to internalise the concepts for the children. - Encourage children to organise objects in the classroom according to their own ideas and explain

Name of the activity	Circle/ Assembly*
Pedagogical moment	<p>Babies who can count from 12 to 18 months  Little explorers from 18 to 36 months.</p>
Contents logical-mathematical	<ul style="list-style-type: none"> - Orientation in space. - Correspondence of child and cushion. - Following an order. - Introduction to counting and estimation. - Sequencing routines.
Approach to the activity	<p>The circle or assembly routine allows a multitude of approaches to mathematical concepts. The simple act of standing in the circle already involves tackling spatial concepts ("stand next to...", or "between... and...", etc.). Each child has his/her own cushion, which must be placed in such a way that everyone can see each other (in the shape of a semicircle or U).</p> <p>Children play with different settings, for example:</p> <ul style="list-style-type: none"> - pass a doll to each other in turn (pass to friend/colleague next to them) - they can also swap places (sit next to each other children who have the same cushion) <p>With 1 and 2 year olds, we begin by taking the register with the help of a classroom mascot, which each child greets and passes to the one next to him/her.) This is used to accompany the action with the language: "Give it to..., who is sitting next to you". To pass the mascot, an order is followed to make sure that everyone has been able to greet the mascot.</p> <p>One of the main activities in the circle is storytelling. There is a wide variety of stories that bring us closer to mathematical intuitions. Beyond the story we use, the interesting thing is that the adult incorporates the idea that, through illustrated albums, chosen according to the quality of their illustrations and the story they present, we can facilitate the learning of mathematics. For example, the story "Moon", from Kalandraka, by Antonio Rubio and Oscar Villán, presents a repeating pattern (moon, moon, sun) and encourages the discovery and repetition of patterns.</p>

With children from 2 to 3 years old, instead of passing the mascot, each day a child can be in charge of counting heads with a wand. The arrangement of the children is the same, so that all of the children can see each other, to make it easier to establish order in counting. It is easier if the children are placed in a U-shape or semicircle, because if the children are placed in a circle, it is more difficult to keep track of where the counting starts and where it ends. To avoid this, if we arrange ourselves in a circle, we can also give clues, such as the teacher being the beginning or the end of the counting (a significant person for all the children).

The aim is not for the children to count correctly, but to provide a meaningful situation in which it makes sense to practice counting to determine how many we are, if someone is missing, or how many are missing. The execution varies throughout the course. At the beginning, the educator supports the counting; later on, the children end up assigning a number label (a numeral) to each child in the group. Usually this process of emergent counting is accompanied by errors when dealing with quantities that are too large for them. Errors in reciting the sequence 1, 2, 3, 4, 5, 8, 9, 5, 6... are common and the children are not yet aware of the principle of cardinality: the last numeral recited represents the number of peers counted. The result of the counting process, the cardinal, must have a corresponding representation.

For this, it is useful to use some kind of manipulative material, for example, blocks symbolising different numbers (NUMICON), or concrete objects to count (Figure 1).



Figure 1. Examples of NUMICON blocks.



During the circle time they talk and organise the day. In other words, activities are sequenced, including routines. To help in this organisation, we can use a panel with pictures of the main activities that the child will order in a time series (first, then, before, last...). Starting at the top of the panel, the photos representing the situations that occur during the day are arranged in order. As always, mistakes are opportunities for the child to evolve. Apart from the person in charge of carrying out this activity, the rest of the classmates are active subjects

	who can suggest and help, or simply observe and learn from the model offered by the other.
Materials	<ul style="list-style-type: none"> • Cushions • Mascot • Stories • Wand • Manipulative counting materials • Panel for pictures of routines • Photos of classroom routines
Educator's role	<p>The educator should arrange the space and materials in a way that is conducive to the proper development of the routine. The educator should act as a guide in the different parts of the assembly, taking advantage of the opportunity to introduce the children to the possible logical-mathematical contents. In addition, he/she will observe the children's responses in order to assess what they have learned.</p> <p>*Based on De Castro Hernández, C & Flecha Lopez, G "Provocations of mathematical intuitions through play from 0 to 3 years"</p>

Name of the activity	Snack time*
Pedagogical moment	<p>Babies who can count from 12 to 18 months.</p> <p>▲ Little explorers from 18 to 36 months.</p>
Contents logical-mathematical	<ul style="list-style-type: none"> - One-to-one correspondence (piece of fruit - child). - Follow an order. - Numbers: up to 3.
Approach to the activity	<p>At snack time, the children take a piece (or several) of fruit. We can take advantage of it to approach a mathematical task such as distributing.</p> <p>The fruit will be prepared in a bowl and a child will distribute it among his peers. Each child should be given a piece of fruit, which is a one-on-one correspondence. Also, at this time, mistakes can be generated that we can take advantage of. For example, it may happen that when distributing the fruit (as it happens in a correspondence, an enumeration, or in the count) some child is skipped. Here the placement of children influences in a remarkable way. The educator can show the importance of following the order and check if each child has a fruit. We can also be the ones who generate mistakes, or learning opportunities, putting less amount than necessary and asking the one who has distributed to go for the pieces that are missing from the kitchen and ask the cook for them.</p> <p>To make it manageable by the child, there will be small amounts (up to three, for example) and will be supported by comments such as "you have to bring one to... and another for..."</p> <p>When distributing, there are basically three strategies: go to the bowl for a piece and give it to the partner, take several pieces and go distributing them and, finally, take the whole bowl and go giving a piece to each of the companions. We consider that all three strategies are valid, although the last one is the most efficient and the one that causes the least amount of mistakes.</p> <p>During the distribution, the adult is a mere observer who will intervene only if the child does not know how to find a solution. He/she can offer clues and encourage other children to help, but without giving the correct answer unless necessary.</p> <p>It is important to allow children to invent their own strategies to solve problems and intervene to help as little as possible (only as strictly necessary) and indirectly.</p>

	<p>This activity would be focused on children from 2-3 years old. For children from 1-2 years old it can be done with greater support from the teacher, accompanying in the distribution, or giving greater instructions. Also in this age group, situations can be prepared in which the number of fruits does not correspond to the number of children. The idea is to offer opportunities to explore the correspondence one by one in a natural way perfectly integrated into the day to day of the classroom.</p>
Materials	<p>1 bowl and chopped fruit (1 piece per child).</p>
Educator's role	<p>Included in the development of the activity. *Based on De Castro Hernández, C & Flecha Lopez, G "Provocations of mathematical intuitions through play from 0 to 3 years"</p>

Name of the activity	Outdoors playtime*
Pedagogical moment	<p>Babies who can count from 12 to 18 months.</p> <p>▲ Little explorers from 18 to 36 months</p>
Contents logical-mathematical	<ul style="list-style-type: none"> - Quality: textures, temperatures, colours, shapes. - Quantity: much/ little, everything/ nothing, more/less. - Measurement: space (in/out, above/below, front/back, etc.), magnitude (large/small, empty/full, light/heavy).
Approach to the activity.	<p>In the playground, common materials are usually cubes, shovels and sand, ideal elements to start in the intuitions related to quantity, measurement, weight, or capacity. Having different containers for the sand allows the child to have the opportunity to check that there are containers that can contain the same amount, that others contain less or more, or that some of the containers are more difficult to fill than others to make cakes or sand castles. The development of these intuitions, with continued use, makes the child decide to use one or the other depending on what he/she wants to do. Many resort to smaller containers, as the filling process is faster, since their purpose is to dump them to make sand castles. Containers can also be compared in capacity, by introducing one into another and also by transferring their contents. In the classroom, you can carry out activities of a similar type, with containers and contents, using other materials that depending on their characteristics enhance the establishment of one type of relationship or others. Thus, it is not the same to provide flour, water or breadcrumbs than to give objects such as stoppers, corks or stones of similar size. The former are continuous (non-countable) materials, while the latter can be treated separately, one by one, as is the case with discrete materials, which are the basis for the idea of unity and for counting.</p>
Materials	<ul style="list-style-type: none"> • Garden sand. • Plastic materials: pallets, buckets, rakes, containers, containers, animal figures, etc. • Natural materials: stones, sticks, wood, shells, etc. (of different sizes and shapes). • Kitchen materials: colanders, moulds, tubes, spoons, funnels, etc.

	 
<p>Educator's role</p>	<p>Will have an attitude of observation and accompaniment. In addition, the actions carried out to make them explicit and favour the internalisation of new knowledge must be verbalised. Besides, he/she will launch questions such as: "Which cube is larger, red or blue? Have you filled the whole bucket? Does the full container outweigh the empty one?"</p> <p>*Based on De Castro Hernández, C & Flecha Lopez, G "Provocations of mathematical intuitions through play from 0 to 3 years"</p>

Name of the activity	Lunch time*
Pedagogical moment	▲ Little explorers from 24 to 36 months.
Contents logical-mathematical	<ul style="list-style-type: none"> - Temporal sequencing of actions (hand washing) - Correspondence: 3 objects for each child - Object classification
Approach to the activity	<p>Before eating, it is necessary to wash hands. It is a seemingly simple activity of mathematical interest, focused on establishing a routine of hygiene and health in children. But in it, we follow a sequence of orderly actions. We sequence this routine into parts so that its assimilation is more effective.</p> <p>The sequences for the correct execution would be: Roll up our sleeves, pour soap on us, open the tap, rub our hands, close the tap, and dry our hands. At first, the support of the adult in the execution is fundamental, because water is too striking an element that distracts attention. As time goes by, the adult takes a back seat and encourages collaboration between peers: "help... to put soap on, to roll up her sleeves...".</p> <p>To eat you need a series of instruments (plates, spoons, bibs). We have another opportunity to address mathematical content by distributing these elements. It is the same type of activity as snack time, we have to distribute several elements. The child in charge has to give each child a bib, a spoon and a plate.</p> <p>The child has to form several equal collections with three different items in each one and make sure that all children have these three utensils. The educator can prepare fewer spoons than there are children. Then the children can ask for more. They will have to answer the question: "How many spoons are still missing?" There could also be more plates than children. What will the children do then?</p> <p>The way to distribute also varies (the same as at snack time). There can be three ways:</p> <ul style="list-style-type: none"> • One by one: the child takes an object, distributes it and returns for another. • Carrying all the elements and distributing them, for instance carrying the basket of the spoons.

	<ul style="list-style-type: none"> • Making an estimation and taking several objects, carrying several spoons to distribute in a group / table of children. <p>We can also prepare the food trolley with fewer items than necessary so that the child has to fetch the missing items.</p> <p>After eating, it's time to pick up. They can begin with the dessert tools: the glass or the spoon with the yogurt container. They have to take it to the trolley and put it in the appropriate place. When storing the glass, they have to stack it on top of each other. The problem arises when there is a tower of glasses too high to fit on the trolley shelf and they have to start a new tower, or split the existing one in two. Apparently, this is a simple problem. To pick up the spoon and the yoghurt cup, they have to make two sets. On the one hand, the spoon set and on the other hand, the yoghurt set. It is a very simple activity and they are able to perform properly from a very young age.</p>
Materials	<ul style="list-style-type: none"> - Washbasin accessible to children - Kitchen instruments: plates, spoons, glasses, containers for storing spoons - Rubbish bag - Bibs - The educator can create pictograms with the different steps of handwashing and ask the children to put them in the order in which they did the actions. These can be placed around the dining room as a reminder.
Educator's role	<ul style="list-style-type: none"> - He/she guides children's actions until they act autonomously. Besides, verbalizing the actions favours the internalization of the logical-mathematical notions: "The spoons go in the white container", "We give each partner a spoon, a bib and a glass", etc. - Encourages peer collaboration in hand washing. - He/she will have an attitude of observation and accompaniment, giving security to children in their learning and reinforcing their self-esteem. <p>*Based on De Castro Hernández, C & Flecha Lopez, G "Provocations of mathematical intuitions through play from 0 to 3 years"</p>

Name of the activity	Nap time*
Pedagogical moment	▲ Little explorers from 24 to 36 months
Contents logical-mathematical	<ul style="list-style-type: none"> - Alignment of shoes grouped by pairs. - Correspondence: 1 blanket for each child.
Approach to the activity.	<p>Before going to sleep, children have to take off their shoes (or slippers) and store them in a place suitable for it. Placement is an alignment with shoes grouped in pairs. At this time, we can take the opportunity to carry out another activity of distributing. A child can be commissioned to hand out the sheets or berries for napping. Some can even cover the children who are lying on each mat. They have to make a one-to-one correspondence between children and blankets and when distributing, there are situations similar to those of previous delivery routines: distribute one by one or estimate the necessary blankets and carry several at once.</p> <p>Through all these examples it is important to see that the mathematical strategies of action (for example, those of distribution) arise in different everyday situations. It is necessary for educators to identify each of these everyday situations as opportunities to learn mathematics and it is also crucial that they do not do what the little ones can do. That is, once we detect the learning opportunity, we do not waste it.</p>
Materials	<p>Rest area:</p> <ul style="list-style-type: none"> • Mats • Shoes or slippers • Blankets
Educator's role	<ul style="list-style-type: none"> - He /she guides actions until boys and girls act autonomously. Besides, verbalizing the actions favours the internalization of the logical-mathematical notions "Shoes must go in pairs", "We give each partner a blanket", etc. - He/she will have an attitude of observation and accompaniment, giving security to children in their learning and reinforcing their self-esteem. <p>* Based on De Castro Hernández, C & Flecha Lopez, G "Provocations of mathematical intuitions through play from 0 to 3 years"</p>


Name of the activity	Logical-mathematical fruits
Pedagogical moment	 Little explorers from 18 to 36 months
Contents logical-mathematical	<ul style="list-style-type: none"> - Quality: colours, shapes and textures. - Quantity: little/much, all/nothing, more/less. - Measurement: space and magnitude (size, volume and weight). - Serialisation and classification.
Approach to the activity	<p>This activity consists of working on logical-mathematical notions based on healthy foods. Below is a proposal for 3 sessions:</p> <p>1st. Work on the basic actions of mathematical logic, with different fruits selected for having different colours, shapes, flavours and textures, (kiwis, bananas, mandarins, etc.). Play classification games according to the different attributes of the fruits selected.</p> <p>2nd. " Fruit skewers ". Taking advantage of lunchtime, the educators will peel and cut up certain fruits so that each child can make his/her own skewer.</p> <p>To do this, a pattern should be established, for example "kiwifruit-banana-tangerine". The educator will do this while verbalising so that the children can imitate it.</p> <p>Following the suggestions of the educator, children will also be encouraged to create their own arrangements of fruit on a skewer. They can work in pairs.</p> <p>The leftover pieces of fruit can be used to continue working on serialisation. An example could be the making of fruit mandalas (see figure 1).</p>



Figure 1. Fruit mandala.

3rd Finally, a cooking workshop is proposed, for example, a "milk and fruit smoothie".

To make the milkshake, the children will be involved in the preparation of the recipe: measuring the necessary quantities of each of the ingredients, mixing them up, etc. Finally, the educator will be in charge of beating all the ingredients (solids and liquids) to make the milkshake (liquid) which will be distributed by children.


Materials

The basic elements for the activity are fruit (best in season), milk, wooden skewers and kitchen utensils (blender, knives, boards and bowls).

Educator's role

He/she will have an attitude of observation and accompaniment. They should also verbalise the actions carried out in order to make them explicit and encourage the internalisation of new knowledge, while at the same time asking questions such as:

"What colour is the kiwi? What shape are the bits of banana? What fruit do we put after the kiwi on the skewer? What fruit is there before the kiwi? Why can't we pick up the milk with our hand? Can you help Pedro with his skewer?"

Name of the activity	Introduction to cardinality
Pedagogical moment	<p>Babies who can count from 12 to 18 months  Little explorers from 18 to 36 months Playing specialist from 3 to 6 years old</p>
Contents logical-mathematical	<ul style="list-style-type: none"> • Quantity with qualitative criteria (there is, there isn't, a lot, a little, none). • Cardinality (number as quantity, cardinal number). • Comparison of sets (more than, less than, equal).
Approach to the activity	<p>Levels:</p> <p>There is / There isn't (1-3 years) Children are given a container and have to recognise whether or not it contains items:</p> <ul style="list-style-type: none"> • By the sound of the box. • Closed boxes and secretly look to see if there are any or not. • With their eyes closed, detect whether it weighs or not. <p>Few / Many (2-4 years) The children are given several containers, with a variable number of objects and they can clearly estimate that there are differences in the quantities (e.g. a jar with one ball, and a jar with 8 balls). They are asked to discuss among themselves whether there are too many or too few items in the containers.</p> <p>Less than / more than (3-6 years) The idea to be worked is less than / more than.</p> <ul style="list-style-type: none"> • Any material is suitable for children to compare. • What does it mean that there are more? What does it mean that there are less (without counting)? • Matching the elements of one set with another, and if there are more elements in one set, it means that there are less in the other one. • Stories can be used to contextualize the comparisons and work on them within a narrative.

Coordination between ensembles (3-6 years)




Similar to the previous one, but this time pairs of sets with the same number of elements are distributed in a disorderly way around the class or playground (for example, two plates with 4 balls, two plates with 6 balls, etc.). The children must find the partner of each set. If they do not know how to count, they must establish element-to-element correspondences: they will have the same cardinal (number as quantity) when each element of one set can be paired with an element of the other set, and there is not any left, neither in one set nor in the other. Finally, each pair representing a quantity can be assigned a meaningful pattern (3-ball plates, a drawing of the three little pigs; 8-ball plates, a drawing of a spider, etc.).

Materials

Containers (plates, boxes, bags) and objects (everyday, from nature, etc.), which will be the elements of the set.



Educator's role	<p>Designing the materials, distributing them among the children. Supervising that there is a mathematically meaningful exploration of the materials.</p> <p>Formulating questions with didactic potential, progressively, to contribute to the construction of the idea of quantity and, later, of cardinal number.</p>
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Name of the activity	Shadows and fingers
Pedagogical moment	 Little explorers from 18 to 36 months.
Contents logical-mathematical	Shapes Counting up to three Property of objects
Approach to the activity.	<p>Most kids from ages 1 to 3 are capable of showing their age with fingers as an answer to the question “How old are you?”. At first, we will ask children how old they are, and invite them to give us an answer with their fingers. If they can’t do it themselves, we will need to show the answer and invite them to repeat it.</p> <p>When they are all capable of doing it themselves, we will invite them to make it in front of the light. We will also pay attention to the shadows, which appear behind their hands.</p> <div style="display: flex; justify-content: space-around; align-items: center;">   </div>
Materials	A safe source of light which has enough power to make a shadow by the daylight.
Educator’s role	He/she will encourage attention and observation. Also can ask questions like “Ana, how old is Beatriz?” “Two years? Can you show it to me with your fingers?” “Well done! Show it again but in front of the light. Can you tell me what has appeared? This is a shadow, it appears where the objects cover the light.”

Name of the activity	Trays of experimentation
Pedagogical moment	▲ Little explorers from 18 to 36 months
Contents logical-mathematical	<ul style="list-style-type: none"> - Quality: textures, temperatures, colours, forms, etc. - Quantity: many, few, all, any, none. - Number: 1,2,3. - Measure: space (inside/outside, on/under, in front/behind, etc.), magnitude (big/small, narrow/wide, long/short, empty/full, light/heavy).
Approach to the activity	<p>Trays of experimentation is an activity in which the youngsters experience in a free way with materials that are disposed of in trays. During this activity continues the experimentation and manipulation of the materials initiated with the basket of the treasures and the development of the heuristic game.</p> <p>Usually a continuous material placed inside the tray and additional materials are used, so that children can use them to establish operational relationships: sorting, grouping, grouping, ordering, seriation, correspondence, etc.</p> <p>The activity consists of two parts:</p> <p>1. Development of the activity.</p> <p>The classroom is set up with the trays on the tables and without chairs, as the children work standing up. Each child will have his/her own tray with the proposed materials and objects.</p> <p>We give the children total freedom to decide how much observation time they need to start the activity. The idea is to let the children play freely without any restrictions, they will try out their own actions, there is no need to direct them.</p> <p>As the children play, hypotheses are formulated through questions such as: What is this? What can I do with this? What is it for? What will happen if...?</p>

2. Collecting the material


Another important part of this activity is the collection of the material after the game. The children will be responsible for putting away the objects used in the designated place, encouraging them to take care and respect for the material. The children, within their possibilities, will help to clean the tables and the floor and to return the classroom to the way it was before the activity started.




Materials	<ul style="list-style-type: none"> • A tray: as neutral as possible, to prevent any distraction. It is preferable to employ trays of cardboard or wood. • Continuous material for the base: water, sawdust, grated bread, flour, rice, chocolate in powder, paste of soup, orange zest, lentils, water, paper, etc. • Additional materials to experience: usually, you can use cans, funnel spoons, strainers, clasps, tubes and different types of containers. <p>It is preferable to use metal tools made of natural wood and reduce the use of plastic.</p>
Educator's role	<p>He/she will observe and accompany the youngsters at all times. Also, will ask questions to promote meaningful learning: "How is the water? What colour is chocolate?, Does the full jar weigh more than the empty one? Does the container hold more lentils? See how Laura has put the flour in the tube. Can you help João to empty the jar?"</p>


Name of the activity	Big and small pine cones
Pedagogical moment	▲ Littles explorers from 24 to 36 months
Contents logical-mathematical	<ul style="list-style-type: none"> -Colour, -Classification, -Weight, size (small and large)
Approach to the activity	<p>Children will have to classify large and small pinecones into colour circles. One colour for the bigger ones and another for the smaller ones.</p> <div data-bbox="442 947 831 1256" data-label="Image"> </div> <div data-bbox="857 940 1281 1256" data-label="Image"> </div> <p>While doing the activity they can also be encouraged to compare the weights of the pinecones.</p> <p>The activity can also be done in pairs, promoting discussion and agreement on how to classify the pinecones.</p>
Materials	2 hoops of different colours, different sized pinecones, a box.
Educator's role	<p>He/she will determine the colour of the hoops in which the small and large pinecones will go, although he/she can ask the children to make this decision. He /she will show children where to put each size of pinecones.</p> <p>He/she will promote pair work, discussion and agreement.</p> <p>During the activity, he/she will ask questions such as "Do you think this one is big or small? Which ring would it go in? What colour is the ring where the small pinecones go? Which type of pinecones are there more of, the small ones or the big ones? Explain it."</p>



	<p>To make comparisons about weight he/she can ask: "Which ones weigh more? Do the bigger ones always weigh more than the small ones?"</p>
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Name of the activity	Matching animals
Pedagogical moment	▲ Little explorers 24 to 36 months
Contents logical-mathematical	<ul style="list-style-type: none"> - Quality: colours and animal shapes. - Quantity: all/any, more/less. - Number: 1 to 3. - Correspondence of animals.
Approach to the activity	<p>Children will be placed around a table.</p> <p>Each one chooses its own template with animal pictures already drawn according to the principle of correspondence 1-1, 2-2, 3-3.</p> <p>In the centre of the table a variety of animal images are displayed, from which each child has to find the ones that are the same as the ones in his/her template and place as many as the sample requires.</p> <p>A variant of the activity is to be done in pairs instead of individually.</p> 
Materials	<ul style="list-style-type: none"> • For the template: patterns of animals. • Cardboard images of animals equal to those used in the template (as many as there are animals represented in each sample), glue, and scissors.
Educator's role	<p>He/she will prepare all the material and display it in an attractive way. Then will give children some indications to endure the activity: "Look for those animals that appear on your template. You have to choose the same quantity of animals as there are here: 1, 2 or 3".</p>

	<p>At this age, children have not yet acquired the notion of numbers, so the educator should help them to identify the number of animals to catch. “You have to pick up more?.</p> <p>He/she can also make questions such as “What animal do you have? What colour is your animal? Do you have all the animals? Are you missing any animals? How many animals do you have? “</p>
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Name of the activity	Counting to 3
Pedagogical moment	▲ Little explorers 24 to 36 months
Contents logical-mathematical	<ul style="list-style-type: none"> - Quality: colours (yellow, red, green, blue) - Quantity: all, none. - Number: 1,2,3. - Measure: space (inside/outside). - Geometrical shapes: circle.
Approach to the activity	<p>The child will have at his/her disposal coloured rings and a base with tubes of these same colours. Next to the tubes, points are drawn from zero to three.</p> <p>The activity consists of placing around each tube as many rings of the colour of the tube as are dots are drawn.</p>  <p>The activity can also be done in pairs, promoting discussion and agreement between children.</p>
Materials	<ul style="list-style-type: none"> • To make the base: Paintings, paintbrushes, cardboard, permanent marker and glue. • Wooden coloured rings.
Educator's role	<p>He/she will observe and accompany the children at all times. He/she will ask questions to promote meaningful learning:</p> <p>"How many dots are there next to the yellow tube? What colours are the rings? What shapes have the rings? What is outside? What is inside the rings? How many rings do you have to put in the blue tube?"</p>

Name of the activity	Matching colours
Pedagogical moment	<p>Babies who can count from 12 to 18 months.</p> <p>▲ Little explorers from 18 to 36 months.</p>
Contents logical-mathematical	<ul style="list-style-type: none"> - Correspondence: objects of different colours with their respective coloured paper. - Quantity: many, some, none. - Colours: blue, yellow, green and red.
Approach to the activity	<p>We lay out the different coloured papers on the floor (blue, yellow, green and red) and explain the activity. They have to look for objects in the classroom that are blue, yellow, green and red and place them on the paper of the same colour.</p>
Materials	<ul style="list-style-type: none"> • Coloured papers (yellow, green, blue and red). • Scissors to cut the paper in smaller parts if necessary. 
Educator's role	<p>We explain the activity and when they all understand it, we just observe and motivate them with good messages and sometimes ask questions like "What colour is that object?", "Where can we put this object?"...</p>

Name of the activity	Tracing the line
Pedagogical moment	<p>Babies who can count from 12 to 18 months.</p> <p>▲ Little explorers from 18 to 36 months.</p>
Contents logical-mathematical	<ul style="list-style-type: none"> - Lines and shapes: straight line, wavy line, zigzag line, circles and letters. - Orientation in space. - Following the lines and shapes. - Quality: textures.
Approach to the activity	<p>Beforehand we prepare some materials (cardboard or others) where we have drawn, written or carved some letters, shapes or lines. We place the material on the floor so that the children can get close to it and do the activity.</p> <p>We explain the activity to them: they have to follow the trace of the lines, shapes or letters with their fingers or hands. We let them do it as they wish.</p>
Materials	<ul style="list-style-type: none"> • Cardboard. • Marker pens • Cutter. <div style="display: flex; justify-content: space-around; align-items: center;">   </div>
Educator's role	<p>We will explain the activity and when they have all understood it; we will just observe and motivate the kids with positive messages such as "Well done!" or "Good job!" We will also ask them questions like "What does this line look like? Do you think it looks like a snake?", "What does this shape look like? Does it look like a ball?".</p>


Name of the activity	A box with four-shaped holes
Pedagogical moment	Babies who can count from 12 to 18 months. ▲ Little explorers from 18 to 36 months.
Contents logical-mathematical	<ul style="list-style-type: none"> - Correspondence: shape and hole. - Geometric shapes: square, circle, triangle and star. - Quality: colours. - Measurement: space "inside/outside".
Approach to the activity.	<p>We place the star shapes, circles, squares and triangles on the floor or on a table, and then tell the children to choose one and try to fit it into its respective hole. When they run out of shapes, they can lift the box (which has a hole underneath) and pick up all the shapes to play again.</p> <div data-bbox="442 1025 769 1303" data-label="Image"> </div> <div data-bbox="793 1039 1163 1303" data-label="Image"> </div> <p>The activity can also be done in pairs, promoting discussion and agreement between children about the name of each shape and where should it go</p>
Materials	<ul style="list-style-type: none"> • A big box. • Scissors and/or cutter to make the shapes • White paper. • Cardboard. • Paints (White, yellow, red, blue and green) to paint the shapes
Educator's role	First we explain the activity, when everything is understood, we will just observe and motivate the children by telling them positive messages like "Well done!" or "Good job!". We will also ask questions such as: "What shape is this?" "Why the star doesn't fit here?" "What colour is the circle?". "Where is the triangle, inside or outside?"

Name of the activity	Paper Hunt
Pedagogical moment	Babies who can count from 12 to 18 months. ▲ Little explorers from 18 to 36 months.
Contents logical-mathematical	<ul style="list-style-type: none"> - Measure: space ("up", "down", "above", "below", "near", "far". etc.). - Orientation in space. - Quality: colours.
Approach to the activity.	First, we will prepare the materials with the help of the children: we will shred different coloured papers. The educator will hide the papers around the classroom or playground without the children seeing them. Then, we will tell the children that there is some paper hidden and ask them to go and get as much paper as they can. When they bring it to us, they will have to say the colour of the paper and where they found it. Afterwards, they can go on hunting again.
Materials	<ul style="list-style-type: none"> • Colour paper
Educator's role	After explaining the activity, we will observe and encourage the children to find the papers with positive messages such as "Let's find the papers!", "Good job!", "Well done!" and ask questions such as: Did you find this paper near or far away? Where was this paper, below or above the table? What colour is this paper?"


Name of the activity	Cubes and animal paws
Pedagogical moment	Babies who can count from 12 to 18 months. ▲ Little explorers from 18 to 36 months.
Contents logical-mathematical	<ul style="list-style-type: none"> - Quality: shapes and textures (animal paws). - Quantity: None, plus-minus, many-few, etc. - Number: 1,2,3,4 and 5. - Geometric shapes: square and cubes. - Operational relations with cubes: stacking, grouping, sorting, etc. - Correspondence: paw with animal. - Measurement: space (up-down/to one side-to the other side, etc.) and sizes (big and small).
Approach to the activity	<p>This is a free play proposal. On the one hand, the children are offered cardboard cubes of different sizes and colours on which they can carry out different actions: stacking, grouping, sorting by size, etc. On the other hand, they are offered drawings of different animal tracks so that they can explore the variety of sizes, shapes, quantities, etc.</p> <p>To carry out the activity, the large group is divided in two, each subgroup plays with one of the materials and when they get tired they swap the game.</p> <div>   </div>
Materials	<p>For buckets:</p> <ul style="list-style-type: none"> • Coloured cardboard. • Scissors. • Tape. <p>For the paws:</p>

	<ul style="list-style-type: none"> • Cardboard. • Paints • Marker pen. • Scissors. • Glue • Materials with textures (cotton, felt, ...)
Educator's role	<p>He/she will prepare the materials. For the paws, it is important to include different textures to represent reality as much accurate as possible.</p> <p>While the activity is taking place, she/he should observe the children's play and make statements/provide information or ask questions that help the children to internalise the logical-mathematical content. For example: "Look, this paw doesn't have any toes", "Do you think this cube is bigger than this one", "Which animal does this paw belong to", "Which paw has more toes", etc.</p>

Name of the activity	Hungry penguins
Pedagogical moment	▲ Little explorers 24 to 36 months
Contents logical-mathematical	<ul style="list-style-type: none"> - Quality: shapes (fish), colours (yellow, red, green, blue). - Quantity: all/none, many/few. - Number: 1, 2, 3, 4 and 5. - Measurement: space (inside/outside).
Approach to the activity	<p><u>Preparation:</u></p> <p>The adult will place 4 coloured cubes identified with the image of a penguin and scatter fish of the same colours as the cubes around the classroom.</p> <p><u>Carrying out the activity:</u></p> <p>As an introduction to the activity, the adult will tell the children that the penguins are hungry and that they should feed them.</p> <p>Then, the children name the colours of the materials.</p> <p>Finally, they will have to put the fish into the bucket of the corresponding colour. To choose the colour they are going to start with, they will take a wooden bucket out of a bag containing the 4 colours of the activity. They will feed the penguin in that colour. And then, they will continue with other colour</p> <p>A second level of difficulty consists of playing with a dice that includes up to the number 5. In this case, the children, after drawing the coloured cube, must roll the die and place the number of fish that came up on the die into the corresponding penguin cube. _</p>

	
Materials	<ul style="list-style-type: none"> • Cubes with a penguin symbol in different colours (yellow, red, green, blue). • Cardboard fish of different colours (yellow, red, green, blue). • Dice with dots (up to number 5). • Coloured wooden cubes of different colours (yellow, red, green, blue); • A cloth bag.
Educator's role	<p>The educator will encourage logical mathematical reasoning with questions such as "What colour is this fish? What number did it come out of? How many fish does the penguin have? Can you help Maija put the fish in the bucket? Who has many fish for the penguin? Who has few fish? Who has no fish for the penguin? How can we help him/her?"</p>

Name of the activity	Mathematical artistic installations
Pedagogical moment	▲ Little explorers from 18 to 36 months.
Contents logical-mathematical	<ul style="list-style-type: none"> - Quality: textures, temperatures, colours, forms, etc. - Quantity: many, few, all, any, none. - Number: 1,2,3. - Measure: space (inside/outside, on/under, in front/behind, etc.), magnitude (big/small, narrow/wide, long/short, empty/full, light/heavy). - Geometrical shapes. - Classification and/or ordination from qualitative or quantitative criteria and/or quantitative. - Sequence.
Approach to the activity	<p>Play installations are an educational proposal conceived from the aesthetic presentation of specific objects in a transformable space. They are designed to favour affective bonds and relationships between a group of girls and boys accompanied by a referent adult who gives meaning to the symbolic processes of childhood in a "place of symbol" as a metaphor for relational life (Ruiz de Velasco A. and Abad J., 2019).</p> <p>The disposal of the materials has to allow the students to walk around the installation and, later, interact with the objects. As a recommendation, this activity should be carried on a free polyvalent space of other stimuli, and different from an usual classroom.</p> <p>Abad and Ruiz of Velasco (2014) indicate that the artistic installations have the following characteristics:</p> <ul style="list-style-type: none"> - Objects are presented in an organised way so that children have an initial order as a reference that gives them the confidence to move and interact with the space and the objects. - Just the right number of objects, unstructured and in a certain quantity, are offered so that they can be used by several children at the same time.

	<ul style="list-style-type: none"> - Objects are chosen for their characteristics and complementarity and should allow for different operations. - The rules of the game emerge spontaneously and are readjusted, which gives singularity and complexity to the proposal. <p>Phases of the proposal:</p> <ol style="list-style-type: none"> 1. Introduction to the children. <p>In this first phase, before starting the game with the different materials, the children are seated around the installation and a dialogue is encouraged with them based on questions related to the mathematical content.</p> <ol style="list-style-type: none"> 2. Free play. <p>The children are invited to move around the space and interact freely with the materials.</p> <ol style="list-style-type: none"> 3. Collection. <p>The educator, with the help of the children, collects the material and returns to the classroom.</p>
<p>Materials</p>	<p>Proposal of installations:</p> <ul style="list-style-type: none"> - <u>Installation 1.</u> 

Installation 2.



Installation 3




Educator's role

The role of the educator is to observe and document the actions of the kids. Besides, can talk with kids to promote the acquisition of mathematical contents. Proposal of questions:
"What objects are there? What objects are you playing with?, what colour is it?, are there many or few?, is it big or small?, is it bigger than..."

or smaller than...?, how many are there?. What route can you take between them? “

He/she can set up the elements differently and ask them: “what has changed?”



Name of the activity	Landscape with plugs
Pedagogical moment	▲ Little explorers from 24 to 36 months
Contents logical-mathematical	<ul style="list-style-type: none"> - Quality: colours and shapes (round). - Quantity: all/none, more/less. - Number: 1. - Colour matching.
Approach to the activity	<p>The children sit around a table. Each child is given a template with a landscape or drawing.</p> <p>In the centre of the table, the coloured caps are placed.</p> <p>In turns, each child throws a die: the colour on which it stops is the colour of the plug they have to pick up. They have to find which part of their template it corresponds to and place it. The game ends when all the holes in the template are filled in.</p> 
Materials	<ul style="list-style-type: none"> • Coloured plugs. • Dice with the colours of the plugs. • Template representing a landscape or drawing with figures painted in the colours used in the game, containing an unpainted circle the size of the plug to place the corresponding plug.
Educator's role	Prepare all the material and arrange it as planned. Once this has been done, give the children the instructions to start the activity: "you have






to roll the dice and depending on the colour that comes up you take a plug of that colour and place it in the hole of your drawing that has the same colour".



While the children are doing the activity, the educator asks questions such as "What colour did you get on the dice, have you got them all, are you missing any plugs, what shape are the plugs?


She/he can also make statements such as "We'll take 1 plug" "Now it's the turn of "Anja".

If they need help with the activity, the educator can help them with questions like "Do you have "x" colour on your template?"


Name of the activity	Light table	
Pedagogical moment	▲ Little explorers from 18 to 36 months	
Contents logical-mathematical	<ul style="list-style-type: none"> - Quality: textures, temperatures, colours, shapes, etc. - Quantity: many, few, all, some, none. - Number: 1,2,3. - Measurement: space (inside/outside, above/below, in front/behind, etc.), magnitude (big/small, wide/narrow, long/short, empty/full, light/heavy). - Geometric figures. 	
Approach to the activity	<p>The light table is a surface with a luminous base that allows children to experiment in a sensory way.</p> <p>The light naturally attracts the children and transforms the materials, giving them a new dimension.</p> <p>It is a resource that belongs to the Reggio Emilia educational approach, which sees the child as the protagonist and with the ability to create their own learning driven by their curiosity, motivation and imagination.</p> <p>Through free exploration, the children acquire the logical-mathematical content described above and establish operational relationships: classification, grouping, ordering, seriation, correspondence, etc.</p>	
Materials	<p>Almost any type of material can be used. Some suggestions are as follows:</p>	
	<ul style="list-style-type: none"> - Silicone building blocks. 	<ul style="list-style-type: none"> - Wooden sensory blocks. 
	<ul style="list-style-type: none"> - Coloured gel balls - Transparent tray 	<ul style="list-style-type: none"> - Coloured containers and transfer utensils (spoons, ladles, cups, etc.)

		
	- Trays with salt, earth or shaving foam 	- Elements of nature 
	- Tetrix figures 	
Educator's role	Observe the child's activity, encouraging him/her to move the materials and observe the properties of the materials with questions such as: What colour do your hands look like, Is the light hot or cold?, Is there a yellow shape?, What happens if you put the pieces on top of each other?, What is inside the circle?, Is that piece long or short?, What did you find interesting?, What surprised you?, etc.	

Name of the activity	Nature is logical
Pedagogical moment	▲ Little explorers from 24 to 36 months
Contents logical-mathematical	<ul style="list-style-type: none"> - Quality: textures, temperatures, colours and shapes. - Quantity: a lot/little, more/less, all/nothing. - Measurement: space (inside/outside, up/down, far/near, in front/behind, from/to), magnitude (size, volume, weight) and time (evolution of the growth of a plant). - Logical reasoning: cause-effect relationships. - Serialisation/ordering based on qualitative attributes. - Numbers: 1 to 3.
Approach to the activity	<p>The activity is introduced with a puppet who wants to learn about nature and will need the children's help to do so.</p> <p>The session takes place in the garden or natural area of the school. The organisation will be based on the children moving in rotation through different areas. In each area, they will first have to solve a riddle and then play with the natural elements presented. The riddle will consist on asking a simple question and give them a choice between two elements in a way that makes it easier for them to get the answer.</p> <div style="display: flex; align-items: center; justify-content: center;">   </div> <p>Zone 1 → Pineapple race!</p> <p><u>Riddle</u>: It's brown, it's hard and it's on trees, what is it? We show them a pinecone and a piece of paper.</p> <p>The children will have pinecones to paint freely. Once they have painted them, they will place them in the pool and play pinecone races.</p> <p>Zone 2 → We plant a plant!</p> <p><u>Riddle</u>: I am green and I live in a pot. What am I? We show them a plant and a watering can.</p>

	<p>In this area, they will plant a plant and observe its growth over time. There will be enough material for each child to plant his/her own plant. The steps to follow are:</p> <p>1st We will take the container and add the cotton wool.</p> <p>2nd To the cotton we will add the seed (a lentil or a chickpea). To work on numbers, we will give them from 1 to 3 seeds, and they will choose how many seeds they want to put in their container.</p> <p>3rd Finally, we will add the water.</p> <p>Zone 3 → Stone series.</p> <p><u>Riddle</u>: I am hard and grey, what am I? We show them a stone and a leaf.</p> <p>There will be stones of different sizes and colours to play with and explore. In addition, they will pictures with stone seriations for them to try to reproduce them.</p> <div data-bbox="863 1319 1098 1473" data-label="Image">  </div> <p>Zone 4 → Get muddy!</p> <p><u>Riddle</u>: I am brown and if I mix it with water and cocoa, you will know who I am. We show them playdough and <u>mud</u>.</p> <p>The children will manipulate the mud independently and freely with different utensils.</p> <p>At the end of the activity, the adult will tell them to put themselves in order from the dirtiest to the cleanest, in this way they will work the idea of order.</p>		
<p>Materials</p>	<table border="1"> <tr> <td data-bbox="438 1796 874 2033"> <p>Zone 1:</p> <ul style="list-style-type: none"> • Natural pinecones. • Tempera paints • Small pool. • Water. </td><td data-bbox="874 1796 1450 2033"> <p>Zone 2:</p> <ul style="list-style-type: none"> • Small container. (e.g. yoghurt container) • Cotton wool. • Lentils or chickpeas. • Water. </td></tr> </table>	<p>Zone 1:</p> <ul style="list-style-type: none"> • Natural pinecones. • Tempera paints • Small pool. • Water. 	<p>Zone 2:</p> <ul style="list-style-type: none"> • Small container. (e.g. yoghurt container) • Cotton wool. • Lentils or chickpeas. • Water.
<p>Zone 1:</p> <ul style="list-style-type: none"> • Natural pinecones. • Tempera paints • Small pool. • Water. 	<p>Zone 2:</p> <ul style="list-style-type: none"> • Small container. (e.g. yoghurt container) • Cotton wool. • Lentils or chickpeas. • Water. 		

	<p>Zone 3:</p> <ul style="list-style-type: none"> • Stones of different sizes. • Tempera paints • Plasticized images with series of stones <p>Zone 4:</p> <ul style="list-style-type: none"> • Container with water and soil. • Experimental materials: bowls, small containers, toys, spoons...
Educator's role	<p>The educator will be observing and accompanying the children and should guide them in carrying out some of the activities.</p> <p>In addition, while the children are in the different areas, he/she should verbalise the actions carried out to make them explicit and favour the internalisation of new knowledge: "Water is wet", "mud is brown", "there are many/few stones", "cotton is soft", etc. At the same time he/she should ask questions such as: ¿Is the mud soft or hard?, Which plant are we planting?, Which stone is coming next?, Which stone is heavy?, Which stone is light?, Which stone is the biggest?, etc.</p>

Name of the activity	Magic mirror
Pedagogical moment	▲ Little explorers from 18 to 36 months
Contents logical-mathematical	<ul style="list-style-type: none"> -Quality: colours, shapes, etc. - Quantity: many, few, all, none. -Measurement: space (up/down, front/back) magnitude (big/small, wide/narrow, long/short). - Geometric shapes. - Symmetry. - Number.
Approach to the activity	<p>This is a free play proposal where different materials are provided for the child to experiment freely with them on the mirror.</p> <p>It is an activity that encourages the spirit of research, as the shapes provided are transformed thanks to the mirror.</p> 
Materials	<p>A large mirror (made of plastic so that it cannot break) and objects.</p> <p>It is interesting to try all kinds of objects:</p> <ul style="list-style-type: none"> • Building blocks. • Waldorf rainbow. • Dominoes.

	<ul style="list-style-type: none"> • Animals. • Lego pieces assembled, creating a sculpture. • Play Mobil dolls. • Forks and spoons. • etc.
Educator's role	<p>He/she will observe each child's activity and ask questions such as "Where is this object? What is on top of that figure? Can you put the animal under the man? Are the figures far away or close together? Are there long pieces? Can you put your red pieces close to Daniella's red pieces?"</p>

Name of the activity	Mini-worlds
Pedagogical moment	▲ Little explorers from 18 to 36 months
Contents logical-mathematical	<ul style="list-style-type: none"> - Quality - Quantity - Measurement - Logical reasoning: cause-effect relations
Approach to the activity	<p>Mini-worlds are play proposals for children based on recreating moments of everyday life or real habitats but on a small scale (farm, beach, jungle, sea, etc.).</p> <p>They are miniature play scenarios in which children, usually with the help of unstructured materials, can give tangible form to their mental worlds.</p> <p>They can manipulate their experiences and interests with a mixture of symbolic play, sensory play and construction.</p> <p>For play with mini-worlds to be fully useful, it is necessary that the child's interest in symbolic play has already been developed.</p> <p>It is important to present the activity to the children in a way that invites them to create and play. Always taking great care of the aesthetic dimension and beauty, with a good choice of materials, allowing creativity to flourish.</p>
Materials	<p>The objects are presented on a <u>support</u> (Tinker Trays, wooden tray, drawers, planters, wheels, a piece of paper on the floor, etc.) filled with <u>loose pieces and unstructured play materials</u> (stones, pine cones, sticks, marbles, nuts, coins, pieces of wood, glass, plastic, cork stoppers, recycled objects, mosaic tiles, etc.) To all these we can add fabrics, earth, vegetables, paper... and combined with wooden construction pieces or any unstructured play material.</p> <p>Moreover, you can use (made or manufactured) <u>characters</u> (Nins, Play Mobil Clicks, animals, play Doug dolls...).</p> <p>Examples of mini-worlds:</p>



Educator's role

He/she will observe the game and raise questions such as: Do you have few or many characters?, What happens if you put those materials there?, Do those pieces fit in that space?, Can the characters be arranged differently?

Children can be encouraged to explore, intuitively, proportions. For example, if they have dolls of different animals, we can ask if they think that the size of one is similar to the other; or ask how many dolls fit in a house, etc.

Name of the activity	Mirror book
Pedagogical moment	▲ Little explorers from 18 to 36 months
Contents logical-mathematical	<ul style="list-style-type: none"> - Quality: colours, shapes, etc. - Quantity: many, few. - Measurement: space (above/below) magnitude (big/small, wide/narrow, long/short). - Geometric figures. - Symmetry.
Approach to the activity	<p>Proposal of several workshops:</p> <p>1. Creating polygons through the mirror.</p> <p>The material is shown to the children and it is explained that they have to place the mirror book in the indicated spot.</p> <div data-bbox="539 1243 1340 1525" data-label="Image"> </div> <p style="text-align: center;"><u>Image 1</u></p> <p>Different templates are presented for them to experiment with.</p> <p>They are asked to open and close the pages of the book to see what shapes they form.</p> <p>Depending on the lines, different sized figures are formed.</p> <div data-bbox="542 1892 1337 2020" data-label="Image"> </div>



Image 2

2. **Lines and shapes**

Children are asked to draw open lines with a marker pen on white cardboard. They can add decoration if they wish.

They are then encouraged to observe the lines with the mirror book. Let them move freely to make "drawings" with the mirror.

The educator will ask the children questions: What happens when you move the mirror? What do you see?

During the experimentation, photographs and videos should be taken. Afterwards they can be viewed for discussion and sharing with the class.

This workshop ends when all the children have completed the activity.

If you have a maths corner, you can leave a book of mirrors and sheets of paper for them to draw and experiment.

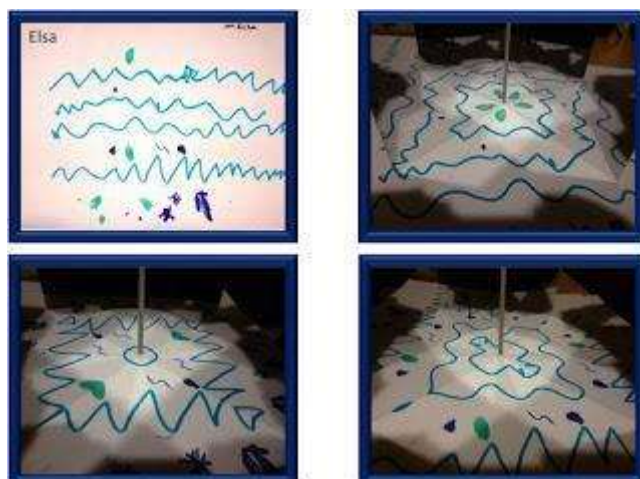
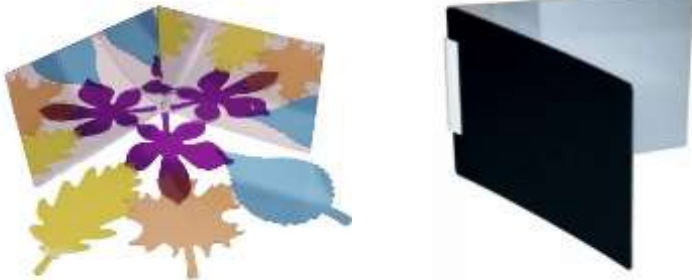






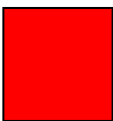





Image 3

It is interesting that the activity also done in pairs. The children can compare the results of the experiments and share their observations.


Materials	<p>The mirror book is made up of two mirrors joined on one side, which can rotate.</p> 
Educator's role	<p>Observe the child's activity, encourage the child to move the mirrors and ask questions such as: What happens when you move the mirror?, Has it changed what was there?, Is the figure bigger or smaller now?, What shape is it?, Is it up or down?, Is it long or short?.</p>

Name of the activity	Music and logical-mathematics
Pedagogical moment	▲ Little explorers from 18 to 36 months
Contents logical-mathematical	<ul style="list-style-type: none"> - Quantity: 1, 2 - Measurement: space and magnitude (size, weight) - Musical Seriation - Geometric shapes: circle
Approach to the activity	<p>It consists of working on mathematical content based on a song.</p> <p>This is an example from the song "My little face".</p> <div style="border: 1px solid black; padding: 10px; margin: 10px auto; width: 80%;"> <p style="text-align: center;"><u>My little face</u></p> <p style="text-align: center;"> "In my little, little round face there's two eyes and a nose and I have a big mouth to laugh and sing a song With my eyes I see all with my nose I sneeze "achuu" With my mouth I like to eat Yummy popcorn melt with cream." </p> </div> <p>Proposed activities:</p> <ul style="list-style-type: none"> - Make manipulative materials to work on the parts of the face with their characteristics (round face, 2 eyes, 1 nose, 1 mouth.). - Hand out instruments to the children to accompany the song, working on two elements of music: fast and slow. - Dance the song by giving them instructions:







	<ul style="list-style-type: none"> • With your feet still, tap your legs with your hands. • Walk freely through the space. • Dance in a circle ("we walk forward to make the small circle" "we walk backwards to make the big circle").
Materials	<ul style="list-style-type: none"> • Manipulative materials for parts of the face. Example: face <input type="checkbox"/> one plate eyes <input type="checkbox"/> two caps nose <input type="checkbox"/> a stick mouth <input type="checkbox"/> wool • Musical instruments: claves and bells
Educator's role	<p>The role of the educator is to observe the children's actions and to direct the activity in the necessary parts. He/she should also verbalise the actions carried out in order to favour the internalisation of new knowledge, and ask questions such as: What shape is the face?, How many eyes/mouth/nose do you have?</p>







Name of the activity	Order to serve meals
Pedagogical moment	▲ Little explorers from 18 to 36 months.
Contents logical-mathematical	Order, shapes, colours, counting up to four.
Approach to the activity	<p>At lunchtime, each place will have one of the following laminated figures stuck on the table:</p> <div style="text-align: center;">      </div> <div style="text-align: center; margin-top: 20px;">      </div> <p>The children sit at the tables</p> <p>The sequence of serving food to the tables can be determined in three different ways:</p> <p>a) We call the children by the geometric shapes they have in place, e.g. "who has the rectangle on the table?"</p> <p>b) We call the children by the colour of the geometric shape: e.g. "who has the yellow colour on the table?"</p> <p>c) We call the children by the number of fingers in the picture, e.g. "Who has three fingers on the table?" (Here we show the children the number of fingers on our own hand to compare with the picture of the table).</p> <p>Children listen carefully and check if they have the shape, colour or number of fingers that we are calling.</p>










	When they identify it, they tell us. We serve those children their food and call another shape, colour or number of fingers.
Materials	Plasticized pictures of shapes or hands for each lunch place. Glue or sellotape to stick them at the tables
Educator's role	<p>If the children have difficulty recognizing shapes, he/she can help them by finding something similar in their immediate surroundings, for example: children do not recognize a circle, so he/she shows them a ball or the sun in a drawing. This can also be done to recognize colours</p> <p>He/she will encourage attention and observation. Also can ask questions like "Can you help your friend to identify his/her sticker? Are there many red stickers? Can you see anything with that shape in this room?"</p>

Name of the activity	Picking fruit
Pedagogical moment	▲ Little explorers from 24 to 36 months
Contents logical-mathematical	<ul style="list-style-type: none"> - Quality: colours and shapes (round). - Quantity: all/some/none, more/less, few/many. - Colour matching.
Approach to the activity	<p>A basket with all the pompoms in mixed colours is placed in the centre of the table.</p> <p>The templates with the trees are distributed around the table.</p> <p>The children stand around the table and freely, with tweezers, pick up a pom-pom and place it in the circled area of the tree with the same colour.</p> <p>The templates symbolize trees and the pompoms their fruits.</p> <p>The game ends when all the fruits of all the trees are filled.</p>  <p>Once they have completed the task, we can give them empty trees and make them work in pairs. One child will put coloured circles on the tree and the other one will have to place the pom-poms on the circles. They will have to agree if the task is well done. Then change roles.</p>
Materials	<ul style="list-style-type: none"> • Coloured pompoms: 10 of each colour.

	<ul style="list-style-type: none"> • Templates: green and brown cardboard for the tree and cardboard in the colours of the pompoms to represent the fruit (10 circles in each tree of the same colour), • Scissors • glue • Basket • Tweezers suitable for children from 2 to 3 years old.
Educator's role	<p>Prepare all the material and arrange it as planned. Once this has been done, give the children the instruction to start the activity: "you take a pompom (fruit) and place it in the circle of the tree of the same colour".</p> <p>While the children are doing the activity, the adult asks questions such as:</p> <p>"What colour is the fruit? Are all the fruits already on the tree? Are there any fruits missing? What shape are the fruits? How many fruits are there, few or many?</p> <p>He/she can also make statements such as: "We take 1 fruit" "now we place it in the circle of " x" colour".</p>

Name of the activity	Provocations						
Pedagogical moment	Babies who can count from 5/6 months to 18 months. ▲ Little explorers from 18 to 36 months.						
Content logical-mathematical	<ul style="list-style-type: none"> - Quality: textures, temperatures, colours, shapes, etc. - Quantity: many, few, all, some, none. - Number: 1, 2, 3. - Measurement: space (inside/outside, above/below, in front/behind, etc.), magnitude (big/small, wide/narrow, long/short, empty/full, light/heavy). 						
Approach to the activity	<p>A provocation is an invitation, a suggestion, placed in a space in the classroom that invites the children to participate, to take an interest in what is prepared, to explore it, to use it and therefore to learn through discovery.</p> <p>In each provocation, different materials are selected according to the needs and interests previously observed in the classroom, preferably natural materials or materials that provide different sensory information, that combine with each other and that allow for expression.</p>						
Materials	<p><u>Examples of proposals and materials</u></p> <ul style="list-style-type: none"> From 5/6 to 12 months: <table border="1"> <thead> <tr> <th>Image</th><th>Materials</th></tr> </thead> <tbody> <tr> <td></td><td>Spaghetti and food colouring.</td></tr> <tr> <td></td><td>Seasonal food.</td></tr> </tbody> </table>	Image	Materials		Spaghetti and food colouring.		Seasonal food.
Image	Materials						
	Spaghetti and food colouring.						
	Seasonal food.						

		Sensory bottles and wooden bases.
		Strips of paper
		Small plastic balls and tape
	<ul style="list-style-type: none"> From 12 to 24 months: 	
	Image	Materials
		Food pasta in different shapes (spaghetti, spirals, macaroni, etc.).
		Leaves, branches and pinecones.
		Recycled elements: jars, bowls, bottles, plastic and metal lids, spoons, paper, cardboard, fabrics...

	<ul style="list-style-type: none">From 24 to 36 months:								
	<table><tr><th>Image</th><th>Materials</th></tr><tr><td></td><td>Unstructured objects, containers, white paper with drawings.</td></tr><tr><td></td><td>Baking paper, clay, natural elements (leaves stones, twigs, etc.)</td></tr><tr><td></td><td>Toy animals, small wooden logs of different heights and widths.</td></tr></table>	Image	Materials		Unstructured objects, containers, white paper with drawings.		Baking paper, clay, natural elements (leaves stones, twigs, etc.)		Toy animals, small wooden logs of different heights and widths.
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	Baking paper, clay, natural elements (leaves stones, twigs, etc.)								
	Toy animals, small wooden logs of different heights and widths.								
Educator's role	<p>The possibilities for play in the provocations vary depending on the material and age.</p> <p>However, in any proposal, the educator will observe and accompany the game. In addition, he/she should verbalize the actions carried out in order to make them explicit and favour the internalization of new knowledge, and ask questions such as: "What objects are there? What objects are you playing with, What colour is it, Are there many or few, Is it big or small, Is it bigger than... or smaller than..., How many are there, What colour is it..., Is it cold/hot, Is it soft/hard, etc. "</p>								

Name of the activity	Puzzles*
Pedagogical moment	<p>Babies who can count from 12 to 18 months.</p> <p>▲ Little explorers from 18 to 36 months.</p>
Contents logical-mathematical	<ul style="list-style-type: none"> - Quality: textures, colours, shapes, etc. - Quantity: all, none. - Number: 1,2,3. - Measurement: space (inside/outside, above/below), magnitude (big/small, wide/narrow, long/short). - Geometric shapes: circle, square.
Approach to the activity	<ul style="list-style-type: none"> • <u>From 12 to 24 months: Less than four pieces.</u> <p>The best thing to do when they are babies is to show them a puzzle of 2 or 3 pieces that has been done, then separate the pieces and show them that in order for the initial image to reappear they have to put the pieces together.</p> <p>As for the subject matter, animals or geometric figures are examples of good illustrations suitable for children of this age.</p> <p>The best ones are the magnetic puzzles, those that show simple shapes and solid colours, large figures that are easily recognisable by children and have enough volume for them to grasp the pieces.</p> <p>Wooden puzzles are the most resistant and are pleasant to the touch for the youngest children.</p> <div data-bbox="798 1532 1189 1713" data-label="Image"> </div> <p>Sensory puzzles with sound pieces or visual effects are also interesting.</p>



Another alternative are the **sound puzzles**, which reproduce the sounds of the shapes that the children fit together when they get them right.



- At 24 months: between four and six pieces.

If the child has been playing with matching games since 12 months, at this age you can offer them puzzles of 4 to 6 pieces, both wooden and thick cardboard, as long as the size of the pieces remains large.



At this point, they can be shown **scenes or figures with bright colours** and richer detail, although the illustrations should remain simple and the lines of the drawing should be well defined.



You can also broaden the subject matter and provide them with **scenes of routine habits or familiar scenarios** that are easily recognisable to them.



- From 24 to 36 months: between 6 and 12 pieces.

Throughout the second year, children can also begin to do puzzles with levels or several layers more or less on their own.




At this age, children can also start to form **cardboard puzzles**. There are giant models, XXL-size puzzles that can be set up on the floor.





There are also **duo puzzles** with figure or concept association activities.




Texture and transparency puzzles continue to arouse their interest and curiosity even at this age.



	
Educator's role	<p>He/she will have an attitude of observation and accompaniment. In addition, he/she should verbalise the actions carried out by the children in order to make them explicit, as well as ask questions to favour the internalisation of new knowledge: "Where can you put that piece? Do you think it goes on top or underneath? Have you put all the pieces in? How many are left? Is it smooth or rough? Is there a circle? What colour is the tree?"</p> <p>Another interesting idea is to encourage children to work in pairs.</p> <p>*From https://www.jardincaramelo.cl/wp-content/uploads/2019/07/junio-julio-2019.pdf</p>

Name of the activity	Screwing Animals
Pedagogical moment	▲ Little explorers from 24 to 36 months
Contents logical-mathematical	<ul style="list-style-type: none"> - Quality: forms (animal, round) and colours. - Quantity: all/any/ none, more/less, many/few. - Correspondence of animals 1-1.
Approach to the activity	<p>The boys and the girls sit around a table. A template and a bowl with caps is delivered to each child.</p> <p>By turns, each child throws the dice: the animal on which it stops corresponds to the cap that the children must take from the bowl. They have to find where the same animal is on their template and screw it in. The game ends when all the caps have been placed.</p>  

	<p>The activity can also be done in pairs, promoting discussion and agreement between children about if they are placing the animals properly.</p> <p>It is recommended that the smaller the children, the larger the caps should be.</p>
Materials	<ul style="list-style-type: none"> • Scissors, glue, cardboard, printed pictures of animals, dice and plastic bottles. • Template: to make the template you have to cut the mouths of plastic bottles. These have to be stuck on a resistant base, for example cardboard. In the interior of each bottle mouth you have to include a small picture of an animal. A total of 6, of different colours. • Caps: the same drawing should be glued on the inside of the previously used bottle mouth. • Dice: in each face, stick a picture of an animal used in the game.
Educator's role	<p>Prepare all the material and arrange it in the planned way. Once made, the educator will give the children the instructions to begin the activity: "you have to throw the dice and look for this animal among the caps of the bowl. Then, screw this cap in your template where the same animal picture is".</p> <p>While doing the activity the educator can reinforce mathematical thinking with verbalisations of the actions that the children are carrying out: "What animal is shown on the dice? Which colour is the animal? Where shall we place this cap?, Is it missing some animal/cap? Are there a lot of caps? How many caps remain? (A lot of/few), The cap is round"</p>

Name of the activity	The game of the rings
Pedagogical moment	▲ Little explorers from 24 to 36 months.
Contents logical-mathematical	<ul style="list-style-type: none"> - Quality: colours and forms. - Quantity: many/few, all/ any, more/less. - Measure: space (inside/was). - Classification by colours.
Approach to the activity	<p>Three tables are set up. A ring of one colour (yellow, red and blue) is placed in the centre of each table.</p> <p>Besides, balls of the colours of the tables are distributed on the floor of the classroom.</p> <p>The children move around the classroom and have to classify the balls they find in the corresponding ring.</p> 
Materials	<ul style="list-style-type: none"> • 3 small tables. • Rings of colours (yellow, red and blue). • Balls of colours (yellow, red and blue).
Educator's role	<p>Prepare all the material and arrange it as planned. Once this has been done, give the children the instructions to start the activity: "you have to take the balls that there are on the floor of the classroom and place them inside the ring of the same colour".</p> <p>While the children are doing the activity, the educator asks questions: "How many balls are there? (many, few) What colour is the ball? Where</p>

	<p>does colour "x" go? Are all the balls of colour "x" already there? Where are there more/less balls? Are the balls inside the circle? There are more balls missing, This is colour "x" in colour "x", There are balls outside the circle, the ball/circle is round, etc.</p>
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Name of the activity	The hedgehog and the seasons
Pedagogical moment	▲ Little explorers from 24 to 36 months.
Contents logical-mathematical	<ul style="list-style-type: none"> - Measures: space (up/down, here/there) and magnitude (big, average, small). - Quantity: a lot/a little, more than/less than, full/empty. - Numbers: from 1 to 4. - Comparison of quantities.
Approach to the activity.	<p>The following activity consists of learning the numbers from 1 to the 4, the notion of quantity and the comparison of different sizes through the seasons of the year with a character "the Hedgehog"</p>  <p><u>INTRODUCTION</u></p> <p>We will introduce the hedgehog, who will travel through the different seasons of the year (spring, summer, autumn and winter). In order to make this journey, the hedgehog will have to get into his car. To introduce the children to the activity, we will describe the numerical characteristics of the hedgehog and the car: two little eyes, one nose, and four wheels.</p> 

SPRING

The hedgehog starts the journey in the spring. The child has to stick the sun on the corresponding part of the mural, through which he/she will work on the number 1.

The adult will ask questions related to the number 1. How many moons are there in the sky?

In this season, they will also be able to work on the notions: a lot and a little.



SUMMER

In this season, the hedgehog will go through summer. The children will learn the number two with the help of some flip-flops. The adult will ask questions related with number two. How many eyes does the hedgehog have?

They will also be able to work on the notions: more than and less than.




AUTUMN

The hedgehog will arrive to autumn. The kids will have to be able to locate each little pig to its home regarding its size. The adult will explain at the beginning of the activity the different sizes (small, average and big). Besides, he/she will make questions related with the number 3. How many Wise Men are there?

In this season, they also will be able to work the notions: full and empty.



	<p style="text-align: center;"><u>WINTER</u></p> <p>Finally, the hedgehog ends up his trip in winter. Here, the kids will have to put the four legs to the camel. In addition, they will work the number 4 with Christmas gifts (of different colours and sizes). Besides, the educator will make questions related with the number 4. How many legs has a table?</p>  <p>Once the activity has been carried out following the instructions of the educator, all the elements used will be arranged separately so that the children can place them freely in their corresponding places. In addition they will be able to experiment with the notions of the containers for each station (a lot - a little, more - less, etc.).</p>
Materials	<ul style="list-style-type: none"> • Base □ cardboard boxes • Hedgehog □ "Actimel" bottle, small caps, toothpicks, pineapple, piece of cardboard (for the nose), small ball (for the nose), tape to drag the car). • Spring □ Flowers, leaves, felt, glitter, cotton, macaroni, Velcro, two containers and green paint. • Summer □ Chopsticks, two containers, sand, Eva rubber and Velcro. • Autumn □ Toilet paper roll, cardboard, sewing button (to make the nose of the piglets), paint, dry leaves, two containers and felt. • Winter □ Cotton, gifts of different sizes (made of cardboard) and felt (for the camel).
Educator's role	<p>The educator has to create the material and place it where children can observe it and interact with. In addition, he/she will guide the children through the seasons, relating the journey to the mathematical notions being worked on. The educator should observe and listen to the children in order to gather information about their learning. Another important aspect is to encourage an attitude of care and respect for materials.</p>

Name of the activity	The ice butterfly
Pedagogical moment	▲ Little explorers from 24 to 36 months
Contents logical-mathematical	<ul style="list-style-type: none"> - Quality: textures, temperatures, colours and shapes. - Quantity: a lot(s)/a little, more/less, etc. - Measurement: space (inside/outside, above/below, in front/behind, etc.) and magnitude (size, volume, weight). - Logical reasoning: cause-effect relationships. - Correspondence between towel and person (my towel, your towel, his towel). - Classification based on qualitative criteria.
Approach to the activity.	<p>The following activities are based on a story entitled "The Ice Butterfly" (see below). It tells the story of the ice butterfly who lived in a meadow and goes through a series of situations that she has to solve together with her friend the little sponge butterfly.</p> <p>Through the narration of the story, the following logical-mathematical activities will be carried out with the children:</p> <p><u>ACTIVITY 1</u></p> <p>A piece of grass will be shown and while the children manipulate it, the educator will verbalize its characteristics: thick or thin, soft or rough, wet or dry and its colour.</p> <p><u>ACTIVITY 2</u></p> <p>We show each child the texture of cotton wool, invite them to touch it and explain that cotton wool is soft, smooth and white.</p>



ACTIVITY 3

The children will paint the rainbow (drawn on continuous paper) with elements from nature and other non-structured elements (pinecones, tree leaves, stones, plastic and cork stoppers, forks and toilet paper rolls). Paint in the colours of the rainbow (blue, red, yellow, green, orange, violet and pink) will be available in containers so that the children can paint it using the materials named above.



ACTIVITY 4

The children will take the ice cube that has been placed in a container in the middle of the circle and look through it.



ACTIVITY 5

The educator will encourage the children to describe the characteristics of ice according to their own experience: cold, hard, transparent, melting, etc.



ACTIVITY 6

Each child will be given a small bottle with small stones inside and they will shake it simulating the sound of rain.

ACTIVITY 7

The children will touch the mud and will be encouraged to say its characteristics: it is cold, it is sticky, it is dirty etc.



ACTIVITY 8

The children will paint the sky on continuous paper. The educator will lay out the paper, blue finger paint and cotton wool. The children will paint the sky blue and form clouds with the cotton wool by sticking them onto the paper.



ACTIVITY 9

The children will touch the texture of the sponge. The educator will give each child a piece of sponge and while they touch it, he/she will encourage them to talk about its characteristics: soft/rough, has holes and can be dry or wet.



ACTIVITY 10

The children will collect the natural elements of different sizes on the playground floor that the educator will have placed beforehand. Once collected, the educator will pick up one of the elements and the children who have that object will have to put them together. The same will be done with the rest of the elements.

By doing this, the grouping of different unstructured elements will be worked on.

ACTIVITY 11

The children will use a sponge to wash their partner's hands. Beforehand, the educator will place the container with water and soap. He/she will encourage them to describe what the feel: the water is cold, the sponge is soft and the soap smells nice and bubbles.



ACTIVITY 12

The children will stand in the sun and dry their partner's hands with a towel. Beforehand, the teacher will give each child his/her own towel. In this activity, they will work on the correspondence of objects: my towel, your towel, their towel.




ACTIVITY 13


The children will take the pegs and will have to hang the towels in the sun. Beforehand, the teacher will place some ropes at the children's height and will leave some different coloured clothes pegs next to them.



Materials	<p>Unstructured material: pine cones, cotton wool, leaves, stones, small bottles, cork stoppers, finger paint, sponge, cotton wool, mud, ice and continuous paper.</p> <p style="text-align: center;">Story: "The Ice Butterfly".</p> <div style="border: 1px solid black; padding: 10px;"> <p>That morning it was sunny and the birds were beginning to sing. The birds were singing to celebrate the arrival of spring and the flowers were waking up on the green mantle that covered the meadow. (ACTIVITY 1)</p> <p>At the same time, the butterflies were also waking up as they left their cocoons (ACTIVITY 2) and appeared with their beautiful wings in the colours of the rainbow. (ACTIVITY 3)</p> <p>From the farthest tree, a very strange butterfly emerged "The Ice Butterfly". Nothing like it had ever been seen before. It was not beautifully coloured like the others, but seemed to be made entirely of glass. The butterfly was dazzling (ACTIVITY 4).</p> <p>Its wings, covered with tiny ice crystals, glittered in the sun and flashed in all directions. It was a beautiful butterfly. -How you sparkle," said a butterfly passing by. - Why do you have such beautiful wings? - asked. - My wings are like ice: cold, soft and transparent," replied the ice butterfly. (ACTIVITY 5)</p> <p>One day, the ice butterfly decided to go and visit a big lake full of huge plants. However, the lake was full of dirt left behind by a group of children, and there was also a lot of mud, because the night before it had rained all over the meadow. (ACTIVITY 6)</p> <p>Their crystal-clear wings, their sparkling glitter, had been soiled with mud. (ACTIVITY 7)</p> <p>The butterfly had come there alone with its fluttering wings. It flew and flew and flew. On its beautiful wings the sun reflected against the deep blue, fluffy sky. (ACTIVITY 8)</p> <p>After a while, it landed near a stream to refresh itself. The butterfly looked up and saw, in front of it, a small butterfly with different spots on its wings; it approached it and touched it. It had a fluffy texture. The other butterfly said, "I don't believe it, you're an ice butterfly! -he exclaimed. The butterfly replied, "Yes. And who are you? They call</p> </div>

	<p>me a sponge butterfly, because my body is like a soft, fluffy, chubby sponge with holes in it. (ACTIVITY 9)</p> <p>-I'm just a strange butterfly that was born with holes," said the butterfly, saddened. -That's not true. You are very pretty and I love your wings. I want you to be my friend and help me. I'm going to call you sponge," replied the ice butterfly. -Of course I will. I will help you with whatever you need and of course we will be friends," replied the little sponge. The butterflies had an important mission: they were in charge of cleaning the lake. The two butterflies began to collect all the materials they found in the lake. (ACTIVITY 10)</p> <p>- We got our paws dirty," said the little sponge to the ice butterfly. - That's right, what do we do now? -asked Sponge. - We can help each other and wash each other's paws," answered the Ice Butterfly. - Perfect," answered the little sponge. The two washed each other's legs with water, soap and a sponge. (ACTIVITY 11)</p> <p>Once the butterflies were clean, they decided to dry themselves in the sun and with a towel. (ACTIVITY 12)</p> <p>The ice butterfly said to Sponge: "Sponge, now we have to hang out the towel to dry. Sponge did not hesitate to help him. He took out 2 pegs from his backpack and helped the ice butterfly to hang out the towel. (ACTIVITY 13)</p> <p>When the other insects (ants, worms, lizards,...) found out what the ice butterfly and her friend Sponge had done, they went to the place where they were and began to applaud loudly and congratulated them for the great effort they had made. Thanks to the ice butterfly and the little sponge, the lake was clean and beautiful.</p>
<p>Educator's role</p>	<p>He/she will have an attitude of observation and accompaniment. As mentioned throughout the activities, the adult should verbalize the actions carried out by the children in order to favour the internalization of new knowledge.</p> <p>During the activities, he /she can ask questions such as "Is the mud soft or hard? How does ice feel in your hands? Is the cotton soft? What colour are you painting the rainbow? What colour is the sky? Do you want more paint?</p> <p>It is also recommended that while the story is being told, the educator stops and asks children what might happen next.</p>

Name of the activity	Transforming spaces
Pedagogical moment	▲ Little explorers from 18 to 36 months
Contents logical-mathematical	<ul style="list-style-type: none"> - Quality: textures, colours, shapes, etc. - Quantity: many, few, all, none. - Measurement: space (over/under, inside/outside, in front/behind) magnitude (big/small, wide/narrow, long/short). - Number. - Geometric shapes.
Approach to the activity	<p>These are situations of great motor skills, of transforming spaces with mobile elements, for example, with cardboard boxes of different sizes. The children enter a space (gymnasium, multi-purpose room, etc.) where they find a series of elements that were not there before and start to play with them (boxes, large fabrics such as handkerchiefs and sheets, tents, different types of paper hanging up and crossing the room, etc.). In each session, the focus is mainly on a different type of material.</p> <p>The transformations of spaces involve an intense relationship with objects that have: shape, initial position, occupy a space and have an orientation, move in certain ways, stack or not, roll or not... and all these experiences help the children to build the first geometric intuitions of space, shape and position.</p> 


	
Materials	<p>Boxes of different sizes, large fabrics such as handkerchiefs and sheets, tents, papers of different kinds hanging and crossing the room, etc.</p>
Educator's role	<p>He/she will have an attitude of observation and accompaniment. In addition, he/she should verbalise the actions carried out to make them explicit and favour the internalisation of new knowledge, at the same time as asking questions or making affirmations such as: "What shape are the boxes? What are you building? Does the box or the handkerchief weigh more? Does the box fit two children inside the box? Does it fit more? Can you make a taller tower? What if you work together? See what your classmates have done"</p> <p>Another important function is to encourage children to cooperate during play.</p>


Playing specialists (3 years until entry into primary stage, 7 years)


Name of the activity	Balls of two colours
Pedagogical moment	■ Playing specialists from 5 to 6 years
Contents logical-mathematical	Probability: chance and uncertainty (certain events, impossible events, probable/possible events).
Approach to the activity	<p>Large group dynamics, discussion led by the teacher or educator</p> <p>We have two or more transparent boxes in the classroom. In some of them, we mix balls of different colours, and in others, there will be balls of one colour.</p> <p><u>We take two balls of the same colour</u> without the children seeing from which box (we can take them out before they come to class...).</p> <p>The challenge we propose, showing them the two balls of the same colour (two green ones, for example), is for them to guess which box we have taken them from.</p> <p>They can start by discarding the boxes from which they are sure (introducing the vocabulary of chance) that they have not come out: for example, from a box in which all the balls are red.</p> <p>Then they can look to see if there is a box with all the balls of that colour. It is true that two green balls can be drawn from that box, but is it the only one, and can we be sure that the balls come from that box?</p> <p>Then the children can reason that the balls could also come from boxes with several colours, in which there are green balls. If they came from there, it is time to discuss the possible facts: is it easy to get two green balls by putting our hand in? What does it depend on whether it is more or less possible?</p>

	<p>In this latter, more complex situation, an intuitive idea of Laplace's rule is built up, approached through experimental work, for example, by drawing balls and noting frequencies.</p> <p><u>We take two balls of different colours</u> without the children seeing from where, and hide them,</p> <p>We show them and they have to guess which box we have taken them from.</p> <p>If they say the box of two colours, it is time to discuss the sure facts. Is it certain to draw just those two balls of the same colour? Or is it only possible? How possible? We can make extractions and note the frequencies. One way to experimentally and explanatorily introduce the idea of "measuring" probability, but not calculating probabilities, is to record the frequencies by repeating the experiment many times, so that the result is seen to "stabilise" in a pattern ...</p> <p><u>Now the other way round</u></p> <p>From which box will you draw the balls so that they are both green? And, to make sure they are both yellow? And, to be one yellow and one green? Will it be certain to do so? First, they have to decide in each case what they are going to do, and then they can do the simulation by taking the balls at random.</p>
Materials	<ul style="list-style-type: none"> • Urns (transparent plastic boxes) • Balls of two different colours
Educator's role	<p>He/she encourages logical thinking, gives children time to think about their answers, not anticipating them. Promotes discussion and the participation of all children</p>

Name of the activity	Bowls of fruit
Pedagogical moment	■ Playing specialists from 5 to 6 years
Contents logical-mathematical	<ul style="list-style-type: none"> - Certain event, impossible event - Uncertainty, plausibility
Approach to the activity.	<p>Before lunch/snack time, all children have to wash their hands. Next, we take some closed, opaque bowls filled with fruits.</p> <p>We ask the children questions such as: "Is it possible that the apple came out of this bowl (one with bananas)?" They would say, "No, it's impossible". "If I take a fruit out of this bowl, am I sure it will be an orange (a bowl with oranges)?" They would say: "Yes, for sure". "If I take a fruit out of this bowl, am I sure it is an orange (a bowl with oranges, bananas and apples)?" "No, it's not sure" (they could answer) "And what do you think will come out?" "Any of the three". "And which do you think will come out easier, the apple or the banana (there are lots of apples and few bananas in the bowl)?" "The apple" (they might say) "Why? but even so, is it sure that the apple will come out? Could a banana come out?" "And a kiwi (there isn't any)?"</p>
Materials	Bowls, different types of fruit
Educator's role	He/she encourages logical thinking, gives children time to think about their answers, not anticipating them. Promotes discussion and the participation of all children

Name of the activity	Catch the strips
Pedagogical moment	 Playing specialists from 6 to 7 years old
Contents logical-mathematical	Basic mental arithmetic: addition, subtraction, multiplication and division with numbers from 1 to 10.
Approach to the activity	<p>Children sit in pairs, opposite each other. Each player has a set of strips from 1 to 10.</p> <p>In each turn, a player rolls two dices. He or she must do an arithmetic operation with the numbers that have come up in such a way that he or she steals the opponent's strip whose value is the result.</p> <p>For example:</p> <ul style="list-style-type: none"> If you roll a 5 and 2 you can steal the strips: <ul style="list-style-type: none"> 3 because it's $5-2$ 7 because it is $5+2$ 10 because it is 5×2 If you roll a 6 and 4 you can steal the strips: <ul style="list-style-type: none"> 10 because it's $6 + 4$ 2 because it is $6-4$ <p>As the strips are stolen, the chosen operation must be further refined.</p> <p>The game is played while practising mental arithmetic.</p>
Materials	<ul style="list-style-type: none"> Cuisenaire rulers and dice.

	
Educator's role	Distribution of materials and supervision of the activity carried out by children in pairs. Promotion of arithmetical thinking.

Name of the activity	Chestnuts and walnuts on St. Martin's Day
Pedagogical moment	■ Playing specialists from 3 to 6 years
Contents logical-mathematical	<ul style="list-style-type: none"> - Comparing quantities. - Counting - Solving everyday problems involving small quantities by using addition and subtraction. - Grouping according to shape. - Sorting by size.
Approach to the activity	<p>The activity is carried out in the classroom as part of the celebration of St. Martin's Day. Chestnuts and walnuts are requested from parents.</p> <p>The activity is carried out in small groups.</p> <p>Children start with observation and free exploration. Through dialogue, the educator explains the questions that may arise and gives suggestions to be carried out with the available elements.</p> <p><u>3/4 year-old children</u></p> <p>They can count and observe which child has the most and which has the fewest nuts. They can decide on which fruit there is the most.</p> 



5/6 year-old children

They can take out nuts and walnuts to form sets. They can use chalk to represent sets and quantity.



Small situations can be proposed that involve adding nuts (and simulating addition), taking away nuts (subtraction), counting from one number of nuts to another (ascending scale), dividing nuts (partitive decomposition/division), forming small groups and seeing their number (quantitative division), doubling quantities, etc.

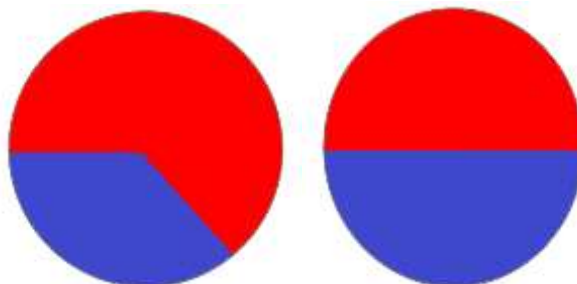
Materials

Chestnuts, walnuts











Educator's role

The educator will observe and verbalize children's' actions such as: "Look, Mar is sorting the chestnuts by size, can you help her?" And ask questions to develop mathematical thinking: "Do you think we have more chestnuts or walnuts?, how can we know?", "If we take out three walnuts how many will be left?" "Can we give each child the same number of chestnuts?"

Name of the activity	Coloured roulettes
Pedagogical moment	■ Playing specialists from 6 to 7 years
Contents logical-mathematical	<ul style="list-style-type: none"> • Probability: Calculation of frequencies. • Probability through statistics.
Approach to the activity	<p>The purpose of this activity is to be introduced to the concept of probability and the calculation of frequencies by using coloured roulettes.</p> <p>We explain that we will spin the wheel ten times and they will record the results of each spin in a frequency table.</p> <p>We repeat the same exercise on the second wheel.</p> <p>When we have the frequency tables completed, we compare the results of the two roulette wheels and ask them why they think this result came out and whether it is possible that a completely different result would have come out.</p> <p>The older children recognise with some ease the frequency distribution that appears, and they agree significantly with the hypotheses they had previously formulated.</p>
Materials	<ul style="list-style-type: none"> • 2 coloured roulettes: each of two colours, in the example, red and blue. A different percentage must be represented on each wheel.





- Tokens: used to record the results in the frequency tables.
- Frequency tables representing the possible and impossible colours and 10 rows equivalent to the rolls.


10					10				
9					9				
8					8				
7					7				
6					6				
5					5				
4					4				
3					3				
2					2				
1					1				
									



Educator's role


Designing and distributing the materials, asking questions to promote thinking about probability



Name of the activity	Complete the drawing
Pedagogical moment	■ Playing specialists from 5 to 6 years
Contents logical-mathematical	<ul style="list-style-type: none"> - Mirror effect - Symmetry - Geometric bodies - Shapes - Orientation in space
Approach to the activity.	<p>On a sheet of paper, there is an axis of symmetry. On one side of the axis (line), there is half of a drawing and the children have to mirror the drawing on the other side of the axis of symmetry. Example:</p>  <p>Afterwards, children could be asked to draw symmetrical objects, and to explain why they are symmetrical, what makes them symmetrical and how they have taken this into account when drawing them.</p>
Materials	Paper, pencils and colours
Educator's role	Giving them instructions and promoting reasoning about symmetry



Name of the activity	Construction of equivalent or coordinating sets
Pedagogical moment	 Playing specialists from 3 years
Contents logical-mathematical	<ul style="list-style-type: none"> • Cardinal number • Equipotent or coordinating sets
Approach to the activity	<p>The child is given a plate or container with a certain number of objects (balls, blocks, toys, etc.). There is separate material (caps, coloured sticks, stuffed animals, etc.) for the child to represent the set with an equivalent number of elements (same cardinal) in another plate or container. The construction of sets with the same cardinal will be done through coordination element by element, without the need for counting.</p> <p>The next step is for the child to decide which elements and what quantity to choose to use as a pattern. Then he/she should create an equivalent in another container, with differentiated objects.</p> <p>The variation of elements is important, because they see that there is a relationship of equivalence independent of the patterns.</p> <p>This activity should be done after having worked on the comparison of sets and the search for coordinating sets.</p>


	
Materials	<ul style="list-style-type: none"> • Containers: plates, eggcups, rings, etc. to form the sets. • Elements: blocks, balls, toys... It is important to vary the materials used (shapes, sizes).
Educator's role	<p>Designing materials and distributing them among the children.</p> <p>Supervision of the activity, ensuring that there is an interaction with the materials that allows children to reflect and communicate on intuitive mathematical ideas, in this case, on the concepts of coordinating and comparing.</p> <p>Formulation of questions that allow the ideas of cardinal, equivalence, lesser or greater, to be built up progressively.</p>


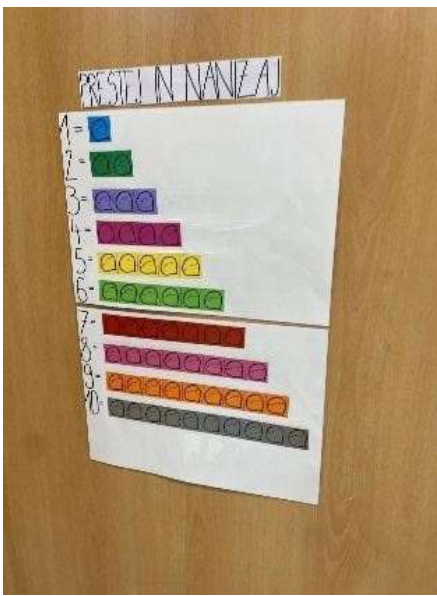
Name of the activity	Continuing the pattern
Pedagogical moment	■ Playing specialists from 5 to 6 years old
Contents logical-mathematical	Pattern recognition, design of patterns and regularities
Approach to the activity	<p>The children are shown pictures on the table with different types of patterns with elements of the season of the year they are in. Example: patterns with autumn pictures (leaves, sticks, pumpkins, chestnuts). Each child has to continue the pattern by adding real material that they have collected from the playground a few days before.</p> <div>   </div>

	
Materials	<p>Patterns made out of different pictures together on one piece of paper. Natural elements (example for autumn: real leaves, sticks, fall fruit).</p>
Educator's role	<p>The educator makes a sample, then helps children to understand and explains how to continue the pattern if they have trouble doing it. After that, children can design their own patterns in pairs, explaining how they have done it...</p> <p>The educator observes children's' actions and helps to reason if they are following the pattern that he/she has proposed: "Do you think that you have put the same number of leaves that there are here?" "Can you help Ainhoa to find what is wrong in her sequence?" Besides, observes children's own patterns and asks questions such as "How many leaves have you got in your pattern?" "Does the stick goes before or after the pinecones?"</p>

Name of the activity	Corn and numbers
Pedagogical moment	■ Playing specialists from 3 years old
Contents logical-mathematical	<ul style="list-style-type: none"> • Numbers • Counting up to 10 • Correspondence between quantity and number
Approach to the activity	<p>Each child will have a template with numbers from 1 to 10 and empty spaces where they will have to put corn seed using tweezers, e.g. on number 10 they will place 10 corn seeds.</p>  <p>When they finish the whole template, they pick a card and identify the colour and the number that is written on it. Then they can also put corn on the silhouette of the number.</p>  <p>Children use tweezers to place corn in empty spaces.</p>

	
Materials	<p>Corn grains, coloured cards with numbers on them, templates with numbers and empty spaces from 1 to 10, tweezers.</p> 
Educator's role	<p>He/she will encourage children to persist through the activity. Moreover, will ask them questions about numbers and colours: "How many corn grains do you have to put there? How many have you already? What is the number on the yellow card? What number are you forming? Can you help Neža to count?"</p>

Name of the activity	Counting with the caterpillar
Pedagogical moment	■ Playing specialists from 5 to 6 years
Contents logical-mathematical	Counting from 1 to 10 Relating ordinal and cardinal.
Approach to the activity	<p>Each circle of a caterpillar has a different colour with a number from 1 to 10 and has a labelled space where children will put chestnuts (e.g. on a blue circle is the number 1 with one space for one chestnut). Children with the help of a counting poster (colour, number of chestnuts), will place chestnuts on the right place on the caterpillar. They can also use chestnuts to make the silhouette of the numbers outside the circles of the caterpillar.</p>  <p>To make it more difficult, we can put the circles with disordered quantities. Then, the children will have to put the chestnuts on the circles and order them. And they can also relate the ordinal with the cardinal</p>
Materials	A poster for counting, a big poster of a caterpillar, and many chestnuts.

	 
<p>Educator's role</p>	<p>The educator goes through the numbers and colours on the poster together with the children. The educator can ask questions such as, "Which is this number? (On one of the circles)". "Let's find how many chestnuts we have to put in this circle", "How we write the number eight?", "Has Celia put the right amount of chestnuts on that circle?" "Why?" "Is this the right amount?" "Are these circles in order?"</p> <p>The teacher can prepare some of the circles for the caterpillar, but it is also useful to give the children a chance to do it: one child can draw the number of pieces on the circle of the caterpillar and the others write the number, or vice versa.</p>

Name of the activity	My favourite fruit is...
Pedagogical moment	■ Playing specialists from 3 to 5 years
Contents logical-mathematical	<p>Data interpretation, Comparing quantities: "more than" and "less than" Associating number with quantity Using simple charts and tables to organise the information collected and interpreting it in order to answer the questions asked</p>
Approach to the activity	<p>In this activity, fruit consumption is promoted through a logical-mathematical game.</p> <p>First, the educator talks to the children about their favourite fruit. Then, the children draw their favourite fruits on square cards and then lay them all out on the floor.</p> <p>The educator ask the following question: "How can we find out, without counting all the fruits, which are the most and which are the least favourite?"</p> <p>Children come up with different solutions and the educator waits for children's ideas, he/she does not give a solution right away. Only after getting to know the children's ideas, he /she can propose some others. There can be different solutions, one can be to make a chart</p>
Materials	<ul style="list-style-type: none"> • Small square cardboards. • Crayons • Scissors. • Photos of each child. • A cardboard poster





A chart can be a solution

Educator's role

The educator gives instructions, especially to the youngest children in the group.

He/she asks questions such as "How many children like strawberries? Which is the most popular fruit? Is there a fruit that nobody likes?"

The teacher observes the students' verbalisations and reasoning.




Name of the activity	Matching flowers
Pedagogical moment	 Playing specialists from 3 to 4 years
Contents logical-mathematical	<ul style="list-style-type: none"> - Quality: shapes (flowers) - Quantity: all/some/none, more/less. - Measurement: big/small - Correspondence of flower shapes 1-1.
Approach to the activity	<p>The children sit around a table. Each child is given a template with the silhouettes of different flowers of different sizes.</p> <p>In the centre of the table, laminated flowers of different sizes are placed.</p> <p>The children have to find and place the flowers that correspond to the ones on the template among the shadows.</p> 
Materials	<ul style="list-style-type: none"> • Template with drawn flower silhouettes. The same silhouettes should come in small and large, not necessarily both sizes of a flower on the same sheet of paper. • A3 green paper • Laminator. • Crayons


Educator's role

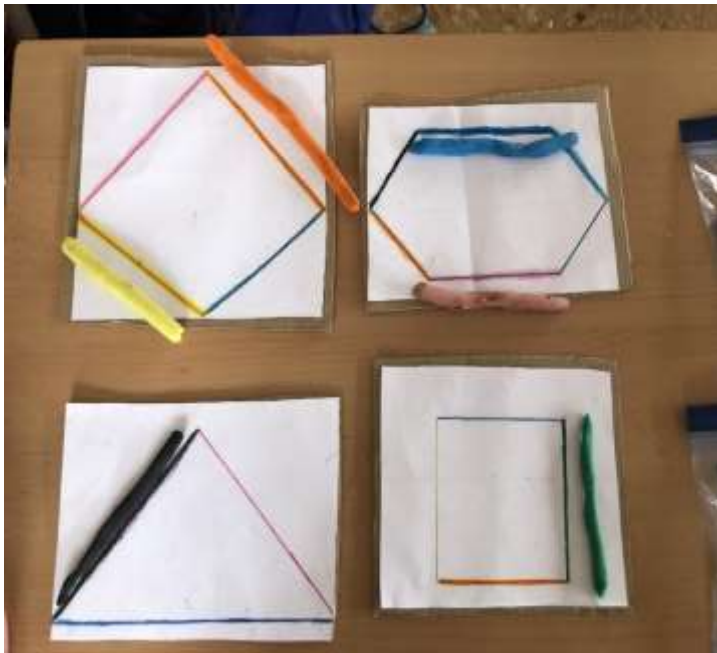
Prepare all the material and arrange it as planned. Once this is done, give the children the instructions to start the activity: "look for the flowers you have on your sheet of paper and place them among the flower shadows".


While the children are doing the activity, the adult asks questions such as "Which flower is the biggest? Which flower is smaller? Do you have all of them? Are you missing any flowers? Will you try one more flower?"


If they need help with the activity, the adult can help them with questions: "Which flower is this one? Do you have this flower on the sheet?"




Name of the activity	Autumn is good fun
Pedagogical moment	■ Playing specialists from 5 to 6 years
Contents logical-mathematical	Classifying, sorting, counting, properties such as weigh, size, shape...
Approach to the activity	<p>First, children named the items, and then they had to sort them – chestnuts on one pile, leaves on another pile, ... We asked the kids what the difference between the items is (colour, shape, size, weight...); then they could create anything they wanted with them (e.g. a heart, a face or they could arrange them by size, colour...</p> <div data-bbox="480 954 842 1431">  </div> <div data-bbox="922 958 1289 1444">  </div> <div data-bbox="466 1458 850 1968">  </div>

Materials	<p>Autumn fruits and natural materials (sticks, leaves, corncobs, chestnuts, pumpkins, rocks...).</p> 
Educator's role	<p>He/she will ask questions to focus on the property of the items: "Do leaves weigh as much as chestnuts?", "What is the shape of corncobs?" on quantity "Are there more leaves or rocks?" on counting "How many pumpkins are there?", on collaborative work "Can you help Elisa to order the fruits by their size?"....</p>

Name of the activity	Shapes with playdough
Pedagogical moment	■ Playing specialists from 5 years old
Contents logical-mathematical	<ul style="list-style-type: none"> -Geometric shapes - Measurement: big-small/ long-short - Colours
Approach to the activity	<p>Children look at the pictures and copy the shapes using playdough. They create shapes of different sizes and use different colours. When they finish the talk about the colours used and count the amount of lines and the geometric shapes.</p> 
Materials	<ul style="list-style-type: none"> • Cardboard • Playdough • Scissors
Educator's role	The educator prepares the materials. He/she observes the children while they are doing the activity and encourages them to verbalize the shapes, sizes and colours.

Name of the activity	Jumping with a dice	
Pedagogical moment	■ Playing specialists from 5 years	
Contents logical-mathematical	<ul style="list-style-type: none"> • Numbers: 1 to 6 • Counting: 1 to 6 	
Approach to the activity	The children stand in a circle. Each child, one after another, throws the dice. Then they count the dots on the dice. The number they get, that is how many times they need to jump. Children practice counting by throwing the dice.	
Materials	<p>A dice of the following material to make it: scissors, glue, cardboard, felt-tipped pen</p> 	
Educator's role	He/she encourages counting. If mistakes are made he/she asks other children for their opinions and corrections. When jumping, he/she observes and ask children if they think that some of them has jumped more or less times that the ones required.	

Name of the activity	What number is missing?
Pedagogical moment	■ Playing specialists from 5 years
Contents logical-mathematical	<ul style="list-style-type: none"> - Sequence: 1 to 6 - Colours. - Numbers: 1 to 6
Approach to the activity	The children stand around a table. Each child is given a piece of paper with a sequence of numbers from 1 to 6 written on it and they have to put the missing number in an empty place. The children count the numbers and talk about the colours that appear.
Materials	<ul style="list-style-type: none"> • Pieces of paper • scissors • felt-tipped pens • cardboard • velcro tape • ruler • pencil 
Educator's role	<p>Before the activity, the teacher prepares strips of paper with sequences of numbers written on them (1 to 6). They also cut out the numbers on a piece of cardboard and colour them in with felt-tip pens. These numbers are the ones that the children will have to add in the number sequence.</p> <p>The teachers ask questions such as "Which is the missing number?" "What colour is this number? What is the next number? What number is this?"</p>

Name of the activity	Number of Flowers
Pedagogical moment	 Playing specialists from 4 years.
Contents logical-mathematical	<ul style="list-style-type: none"> - Quality: shapes and colours. - Numbers: 1 to 10. - Quantity: all/some/none, more/less. - Correspondence: quantity and number.
Approach to the activity	<p>The children take a seat around the table. The educator places a number of flowers on a cardboard. Then she/he asks the children how many flowers there are, they count them and mould the number that represents that amount of flowers with play dough.</p> <p>The children should be able to manipulate the flowers themselves, so it is interesting to do the activity in pairs. One sets a number and the other partner counts and represents it with play dough.</p> <div data-bbox="518 1182 900 1688">  </div> <div data-bbox="973 1164 1369 1688">  </div>




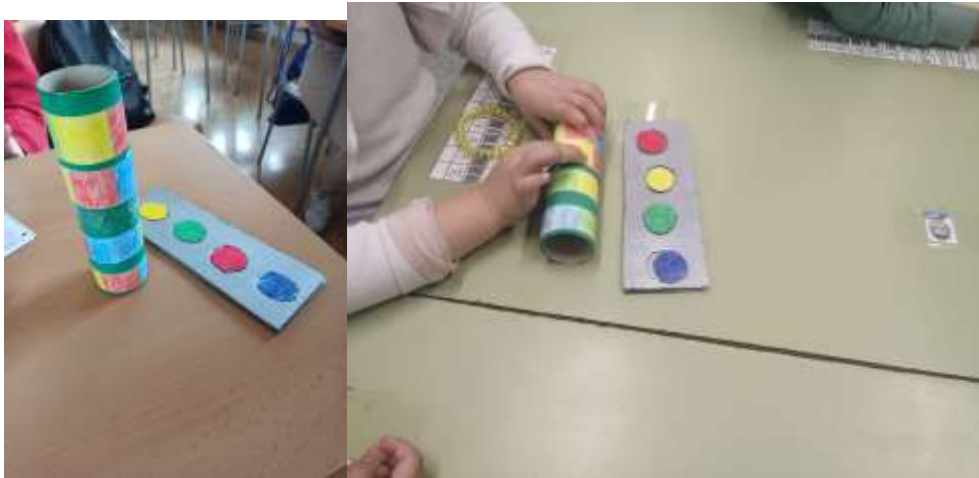
The numbers from 1 to 10 should be placed in the children's environment (on the wall of the classroom, stuck to a table, etc.).

Materials


- Cardboard.
- Scissors.
- Marker pens.
- Paints
- Playdough.
- Velcro

Educator's role

The educator prepares all the material and sets it up as planned. Once this is done, she/he asks: "can you count the flowers on the cardboard", or, "How many flowers do you have to put there? "How do we mould number 3? Can you help Laura to mould number 2?"


Name of the activity	Colour Match
Pedagogical moment	 Playing specialist from 4 years old.
Contents logical-mathematical	<ul style="list-style-type: none"> - Quality: colour - Measurement: big/small - Correspondence of the colour. - Seriation
Approach to the activity	<p>The children stand around a table. Each child has a template with 4 holes and four pieces that fit into those holes. One of each colour. Each table has a tube containing four strips painted with the four colours of the tokens the children have. The educator turns these strips randomly forming a column of colours, which the children have to reproduce with the their tokens in their template.</p> <p>The game can also be played in reverse. An order of colours is established with the tokens and the girls and boys have to copy that sequence on the stripped cardboard tube.</p> <p>Also, children can play in pairs by setting patterns that the other partner has to replicate.</p> <div data-bbox="443 1350 1426 1825" data-label="Image">  </div>
Materials	<ul style="list-style-type: none"> • Cardboard kitchen roll. • Paper. • Scissors.

	<ul style="list-style-type: none"> • Tape. • Cardboard. • 4 colours of paint.
Educator's role	<p>Prepare all the material and set it up according to what has been previously established. Once this is done, give the children the instructions to start the activity: While the children are doing the activity, the adult asks questions such as: "What colour is this, what colour comes first/last, what is your favourite colour, do you want to try a different order of the colours, what is the next colour, etc.".</p>


Name of the activity	Yummy ice creams
Pedagogical moment	■ Playing specialists from 4 years old.
Contents logical-mathematical	<ul style="list-style-type: none"> - Quality: colours, textures - Number: 1 to 4 - Order: 1st to 4th - Seriation and patterns. - Colour matching
Approach to the activity	<p>The children sit around a table. The educator puts strips of paper in the middle of the table with 4 cones with ice cream balls of different colours drawn on them. Each child chooses a strip of paper. These strips should be laminated.</p> <p>The children then create "ice-cream balls" with plasticine of the same colour as the balls on the template they have taken and place them in the corresponding place. In this way, they work on colour sequencing.</p> 
Materials	<ul style="list-style-type: none"> • Plasticine. • Markers. • Scissors. • Paper • Laminating machine and laminating sheets.


Educator's role

Prepare all the materials and set them up as planned. While the children are doing the activity, the educator asks questions such as "What colour is the ice cream? How many orange/green/blue ice cream balls are drawn? How many cones are on the template? Which colour goes next?"

Name of the activity	Creating with strips of paper
Pedagogical moment	■ Playing specialists 4 years old.
Contents logical-mathematical	<ul style="list-style-type: none"> - Quantity: all/some/none, more/less. - Size: big/small. - Numbers: 1 to 9. - Geometric shapes.
Approach to the activity	<p>The children sit around a table.</p> <p>They are given strips of cardboard of different sizes and suggested to create different geometric shapes and numbers from 1 to 9. With the combination of the geometric shapes they can also form simple objects from the environment, e.g. a house. Once they have made some shapes and numbers, it is interesting to give them the option to play freely.</p> <p>The children can also play in pairs. Each time it is one of them who suggests the shape, object or number to represent.</p> 
Materials	<ul style="list-style-type: none"> • Paints. • Brushes. • Cardboard.

	<ul style="list-style-type: none"> • Scissors.
Educator's role	<p>He/she will ask questions to facilitate the internalization of mathematical thinking. "How many strips do you need to create the number 4? How many strips do you need to create a triangle? etc. To propose their creations, the educator can ask questions such as What is your favourite number/geometric shape?"</p>

Name of the activity	Colour mixing
Pedagogical moment	■ Playing specialists from 3 years old
Contents logical-mathematical	- Quality: transformation of primary colours into secondary colours.
Approach to the activity	<p>We organise the children into groups to carry out the activity. Each child receives one self-closing bag with 2 primary colours to mix. They have to mix the colours with their hands and fingers, working on fine motor skills. Then we give them a piece of paper to paint with the colour they have created, using their hands.</p> 
Materials	<ul style="list-style-type: none"> • Self-closing bag. • Primary colours paints. • Paper.
Educator's role	He/she will encourage observation and reasoning about the transformation of colours: What colours are you mixing?, What colour do you have now? What has happened?, Where are the colours that you had before?"

Name of the activity	Hungry monkeys
Pedagogical moment	■ Playing specialists from 3 years
Contents logical-mathematical	<ul style="list-style-type: none"> - Correspondence: monkey and banana of the same colour. - Quality: colours. - Measurement: space (inside-outside/up-down).
Approach to the activity	<p>The activity consists of putting the bananas into the mouths of the monkeys of the corresponding colour. To increase the difficulty, food that these animals do not eat is included, so that the children have to decide what they eat.</p> <p>The educator will place the box on the floor. The monkeys have holes to represent their mouths into which the bananas will be put.</p> <p>The children will be organised into groups, and each group will be offered a variety of foods: bananas of different colours and other types of foods. Each child will take one and decide whether the monkey eats it or not. If it is a banana, he/she will insert it into the corresponding mouth.</p> 
Materials	<ul style="list-style-type: none"> • A large box. • Marker pens. • White paper to wrap the box. • Cellotape. • Paints in the same colours as the bananas. • Drawings of different coloured bananas and other foods. • Scissors.

Educator's role

Before starting the activity, he/she asks the children: What do monkeys eat?

While they are doing the activity, he/she asks questions to stimulate mathematical reasoning: What colour is this monkey/banana?, Does that banana go on that mouth?, Do monkeys eat ice-cream?, etc.



Name of the activity	Introduction to cardinality
Pedagogical moment	<p>Babies who can count from 12 to 18 months Little explorers from 18 to 36 months ■ Playing specialists from 3 to 6 years old</p>
Contents logical-mathematical	<ul style="list-style-type: none"> • Quantity with qualitative criteria (there is, there isn't, a lot, a little, none). • Cardinality (number as quantity, cardinal number). • Comparison of sets (more than, less than, equal).
Approach to the activity	<p>Levels:</p> <p>There is / There isn't (1-3 years) Children are given a container and have to recognise whether or not it contains items:</p> <ul style="list-style-type: none"> • By the sound of the box. • Closed boxes and secretly look to see if there are any or not. • With their eyes closed, detect whether it weighs or not. <p>Few / Many (2-4 years) The children are given several containers, with a variable number of objects and they can clearly estimate that there are differences in the quantities (e.g. a jar with one ball, and a jar with 8 balls). They are asked to discuss among themselves whether there are too many or too few items in the containers.</p> <p>Less than / more than (3-6 years) The idea to be worked is less than / more than.</p> <ul style="list-style-type: none"> • Any material is suitable for children to compare. • What does it mean that there are more? What does it mean that there are less (without counting)? • Matching the elements of one set with another, and if there are more elements in one set, it means that there are less in the other one. • Stories can be used to contextualize the comparisons and work on them within a narrative. <p>Coordination between ensembles (3-6 years) Similar to the previous one, but this time pairs of sets with the same number of elements are distributed in a disorderly way around the class or playground (for example, two plates with 4 balls, two plates with 6</p>

balls, etc.). The children must find the partner of each set. If they do not know how to count, they must establish element-to-element correspondences: they will have the same cardinal (number as quantity) when each element of one set can be paired with an element of the other set, and there is not any left, neither in one set nor in the other. Finally, each pair representing a quantity can be assigned a meaningful pattern (3-ball plates, a drawing of the three little pigs; 8-ball plates, a drawing of a spider, etc.).

Materials



Containers (plates, boxes, bags) and objects (everyday, from nature, etc.), which will be the elements of the set.






Educator's role	<p>Designing the materials, distributing them among the children. Supervising that there is a mathematically meaningful exploration of the materials.</p> <p>Formulating questions with didactic potential, progressively, to contribute to the construction of the idea of quantity and, later, of cardinal number.</p>
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Name of the activity	Joan Robot, dance!
Pedagogical moment	■ Playing specialists from 4 to 6 years.
Contents logical-mathematical	<ul style="list-style-type: none"> • Logical thinking • Computational thinking • Psychomotricity, Laterality <p>In relation to computational thinking, this game helps to develop:</p> <ul style="list-style-type: none"> • <i>Abstraction</i>: the dance, which is a complex process, is eliminated and the focus is on 4 simple movements. • <i>Algorithmic thinking</i>: a sequence of precise dance movements must be followed step by step to achieve the choreography. • <i>Decomposition</i>: a complex problem, such as dance, is broken down into four simple movements in a row. • <i>Generalisation and patterning</i>: once it is understood that dance is a series of simple movements, a new movement can be included in the four-step choreography.
Approach to the activity	<p>The educator explains the different possible movements we can do to dance (for example, we will have 4 possible movements).</p> <ol style="list-style-type: none"> 1. First, the educator orally describes (or writes down) each movement one at a time in front of the whole class. 2. Then the educator reproduces the complete sequence of four movements and the class repeats what he/she does. 3. Now we have our first choreography! Adding music to the dance is great fun. 4. When the mechanics of the game are clear, it is now up to the children to give and follow the instructions, in pairs, in groups or as a whole class. 5. Therefore, if the children now create dance algorithms in groups, the teacher must insist that precise instructions are given at a pace that everyone can follow. 6. If the whole class dances, whoever has the role of monitor can write down a sequence of 4 movements to be danced to the rhythm of the music as it plays.

	Children may encounter problems with laterality. To tackle it, different coloured bands can be provided to differentiate left and right.
Materials	Cards with coloured dots, arrows or shapes, which form a code that can be used as a set of precise dance instructions.
Educator's role	Design of materials, explanation of codes, guidance in the activity.

Name of the activity	LEGO building blocks DIY Duplo
Pedagogical moment	■ Playing specialists from 3 to 6 years
Contents logical-mathematical	<ul style="list-style-type: none"> - Following a pattern - Geometric shapes - Colours - Numbers
Approach to the activity	<p>The educator asks the children to build numbers and shapes (triangle, circle, rectangle, house, etc.) with different colours.</p> <p>Example: build a 4 with red.</p>  <p>Example: Build a house with green, blue, yellow and red.</p>  <p>Finally, the children can play freely by creating constructions and give each other tasks to do with the Lego blocks.</p>
Materials	Lego building blocks DIY Duplo
Educator's role	He/she will verbalise the actions that are being made and will ask questions in order to stimulate the internalization of mathematical thinking: "Now you are putting the red block on top of the triangle". Do you need to add any more blocks? How many sides has the triangle?"

Name of the activity	Logic-mathematics in nature
Pedagogical moment	 Playing specialists from 4 to 6 years.
Contents logical-mathematical	<ul style="list-style-type: none"> - Seriation - Geometric shapes - Numbers - Mirror effect - Spatial orientation - Following a pattern
Approach to the activity	<p>This activity includes different proposals to stimulate logical-mathematical thinking in nature. In order to carry them out, the group of children together with the educator should go to a nearby natural area (it could be the school playground or garden) where a variety of natural elements can be found (stones, a variety of leaves, branches, insects, etc.).</p> <p>1. Mandalas</p> <p>The educator asks the children to find a series of elements from nature (in the example: stones, pinecones, flowers and three types of leaves).</p> <p>They then stand in a circle and take turns to form the mandala from the inside out as indicated by the educator, who can use a given model as an example, such as the template below.</p> <p>For the placement of each element, the students have to answer a question about themselves (for example, when placing the stones, they answer the question: what is your favourite colour?)</p> <div style="display: flex; justify-content: space-around; align-items: center;">   </div>

2. Shapes

Using the natural elements at hand, children can be asked to make geometric shapes, letters or series of letters, etc.




3. Bingo





We will handout a cardboard with images of nature that children have to find. This activity can be proposed in groups to encourage teamwork. The group that finds the elements first wins.

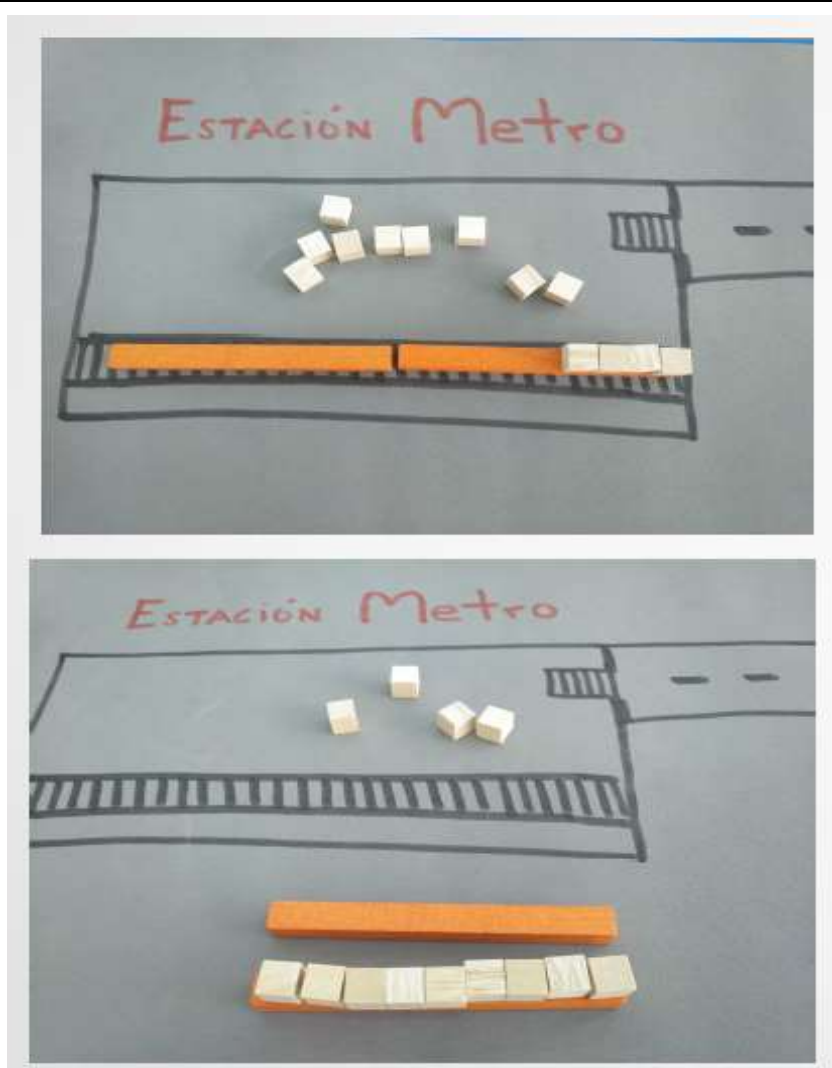
4. Mirror effect

The proposal consists of showing half of an element so that the children can draw the other half with a mirror effect.

	
Materials	Elements of nature
Educator's role	Give indications to the children for each proposal, ask questions and make statements that favour the acquisition of logical-mathematical notions. With the same purpose, it is interesting that the educator stimulates thinking at the beginning of the activities so that children think about different possibilities, for example, "With what elements can we represent the number 3? (This question induces to a variety of possibilities: building, cutting, painting, etc.).

Name of the activity	Long vs short straws
Pedagogical moment	 Playing specialists from 3 to 6
Contents logical-mathematical	<ul style="list-style-type: none"> - Long/short - Probability - Difference between measuring and counting
Approach to the activity	<p>First, the educator shows the children a number of straws of different lengths (one short and all the others long).</p> <p>The children count the straws and notice that one is not the same length as the rest. Once they have been measured and counted, the educator puts the straws together and covers them at one end so that they all look the same. He/she then asks the children questions about probabilities. For example, “How likely do you think you can find the shortest straw? Is it impossible to pull out a medium straw?”</p> <p>He/she can vary the proportion of short and long straws and ask other types of questions. For example, 5 short straws and 3 long straws are included: “Is it easier to pull out a long straw or a short straw?” and ask them to try to explain why.</p> <p>The variety and complexity of possibilities will increase as the children get older.</p>
Materials	<ul style="list-style-type: none"> • Straws • Scissors
Educator’s role	<p>Cut the straws and place them as indicated.</p> <p>Motivate and ask the children about the chances of pulling out a straw.</p> <p>Show the difference between measuring and counting.</p>

Name of the activity	Means of transport
Pedagogical moment	 Playing specialist from 5 to 7 years
Contents logical-mathematical	<ul style="list-style-type: none"> • Arithmetic in a contextualised situation. • Problem solving
Approach to the activity	<p>Each strip represents a quantity and at the same time a means of transport. Examples: Pedestrians, bicycles, motorbikes, taxis, cars, vans, minibus, medium bus, large bus and metro.</p> <p>- For example: <i>Can all passengers fit in a metro carriage that arrives with four passengers?</i> $4 + 6$ completes 10 passengers per carriage. 4 remain on the platform. <i>How many passengers will fit in the next station?</i> $10 - 4 = 6$ We can also pose doubles problems (how many will fit in two metro cars?), etc.</p>



-Another example:

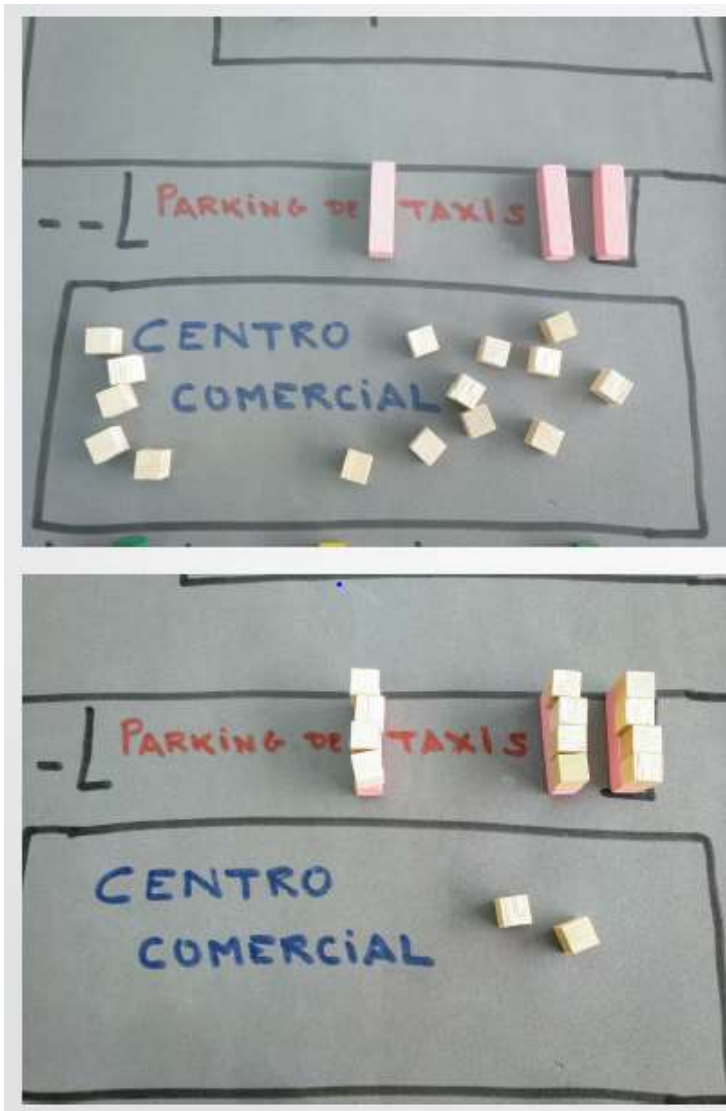
The film ends at the cinema in the shopping centre. 14 people go out looking for a taxi, how many do they need?

Division as groups of 4:

14 is 3 groups of 4 and remainder 2.

14: 4 = 3 and 2 to spare. Or $4 \times 3 + 2 = 14$.

They need a fourth taxi in which 2 seats will be empty.

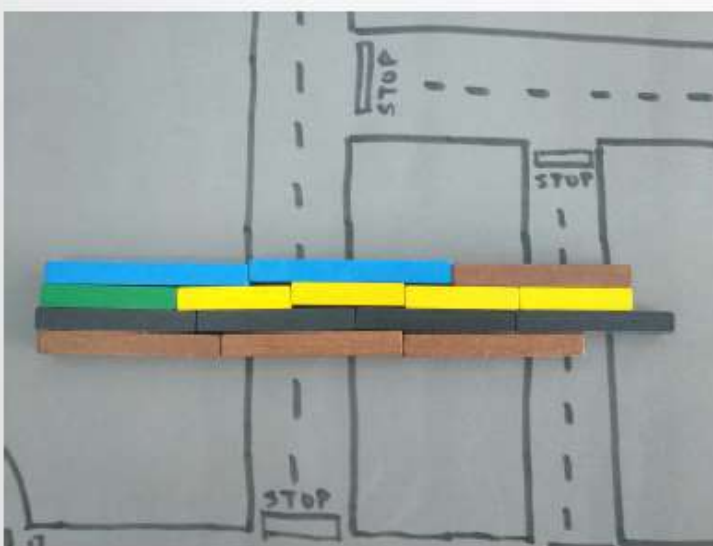
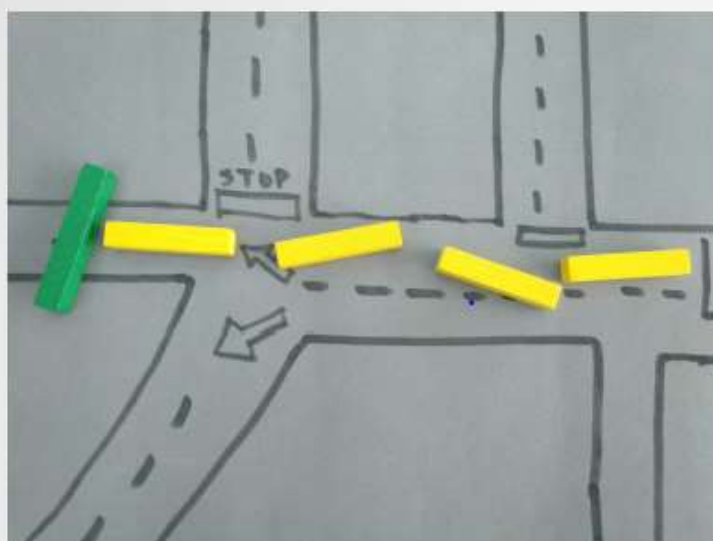


- Another example:

There has been a chain collision between a van and four cars.

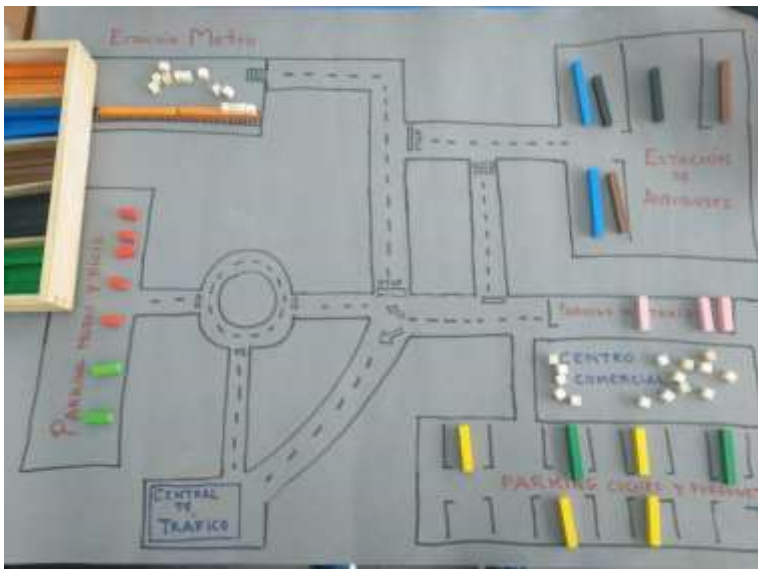
Find means of transport that are capable of transporting all the people affected by the accident.

Work on decomposition, equivalence between cardinals and comparison of quantities.



Materials


Cuisenaire strips and tokens/cards.

	
<p>Educator's role</p>	<p>Designing materials, supervising children's exploration, ensuring that they do meaningful arithmetic work. Asking questions, posing problems and giving instructions or hints when necessary.</p>

Name of the activity	Minigolf
Pedagogical moment	■ Playing specialists from 5 to 6 years old
Contents logical-mathematical	<ul style="list-style-type: none"> – Measurement: space (up, down, left, right, forward, backward). – Computational thinking: a sequence of movements must be followed step by step in a precise manner. – Abstraction: the sport of golf is complicated, but we eliminate the aspects of the game that are not necessary, and focus the attention on 4 simple movements. – Decomposition: the complex problem is broken down into individual movements that solve the problem. – Generalisation and patterning: once they understand how the ball moves, a new movement such as the two-pass advance or the diagonal movement can be included.
Approach to the activity	<p>The game is played in pairs. One participant places the elements in the grid (a ball, a hole and, optionally, some obstacles). The other (programmer) indicates the sequence of movements to be followed by the ball. The sequence of movements can be indicated with movement cards or by writing it down on a piece of paper. In computer science this is known as "pair programming".</p> <p>The first participant (who has placed the elements) moves the ball to the hole following the algorithm. If there is a mistake, the path is redesigned until the ball reaches the hole.</p> <p>The ball is hit and moves through the squares with simple movements: up, down, right, left. As the ball is a sphere and does not point anywhere, there is no turning movement: the ball always moves towards where the arrow of the shot is pointing.</p> <p>When the ball reaches the hole, the game is played again, swapping roles.</p>
Materials	<ul style="list-style-type: none"> • Board: one option is to use the chessboard to play. You can also print a grid on a piece of paper. • Ball: you can draw and cut out a golf ball, or use a parcheesi or checkers piece, or make a ball out of paper. • Hole and obstacles: if you play with a chessboard, you can glue fixed elements such as the hole, the trees...

	<ul style="list-style-type: none"> • Move cards on paper: You can draw the possible moves on cards and laminate them. The golfer picks up the cards and places them in order so that the ball goes into the hole.
Educator's role	Design and distribution of materials, provide indications for the game and supervision of the activity.

Name of the activity	Open and closed lines
Pedagogical moment	■ Playing specialists from 4 to 6 years
Contents logical-mathematical	<ul style="list-style-type: none"> Geometry: Open and closed lines
Approach to the activity	<p>Each child is given a coloured string. We play with the strings, observing the movement to the rhythm of the music. When the music stops, the rope is placed on the floor, giving it the shape of a closed line. When the music starts, we dance inside the rope.</p> <p>The same as before, but in a group: a closed line is formed by joining several ropes together. Then children dance inside it.</p> <p>Afterwards, we sit in a circle on the floor. Taking turns, each child puts a rope inside the circle, giving it the shape they want, as they like. The shapes cannot be repeated. They are left on the floor. Now we all paint a mural, each child paints the shape she/he has made with the rope. We hang our mural of closed/open lines on the wall and we discuss about it. The educator ask the children to identify the shapes with open lines and the shapes with closed lines.</p>
Materials	Strings and music player.
Educator's role	Plays music, directs the children's movements, giving instructions and setting an example with his/her bodies and movements. Encourages reasoning and identification of shapes. Graduates the complexity of the movements and the spatial references used.

Name of the activity	Order and quantity association
Pedagogical moment	■ Playing specialists from 4 to 5 years
Contents logical-mathematical	Cardinal number and ordinal number.
Approach to the activity	<p>In groups, the children have to create an ordered number sequence and then on each of the ordered items place the number of objects according to the position in the number sequence. They can discuss and pose problems based on the situation. It is important to encourage cooperation between the children in the development of the activity.</p> <p>It is advisable to carry out this activity after having worked on numbers from cardinality and ordinality (numerical sequence).</p>
Materials	<p>Examples of different options:</p> <ul style="list-style-type: none"> • Ladybirds and leaves 

- Mice and beads:




- Pencil boxes and pencils:





Educator's role

Design of the materials
Management and supervision of group work and mathematically meaningful interaction between children and the material.
Asking appropriate questions.

Name of the activity	My name and the cardinals
Pedagogical moment	■ Playing specialists from 4 to 5 years
Contents logical-mathematical	Ordering and comparison of cardinal numbers
Approach to the activity	<p>1- We look for the card with our name on it and when we have it, we put clothes pegs on it.. The clothes pegs are represented by the letters of the girls' and boys' names.</p> <p>2- We count the clothes pegs in our name and look for the card with the number corresponding to that quantity..</p> <p>3- Finally, we take the clothes pegs that we have used in our name and we go to the carpet to assemble our broomstick. The short-long concept is represented by the broom.</p> <p>We do this in groups so that once we have assembled all the brooms, we can compare their sizes.</p> 

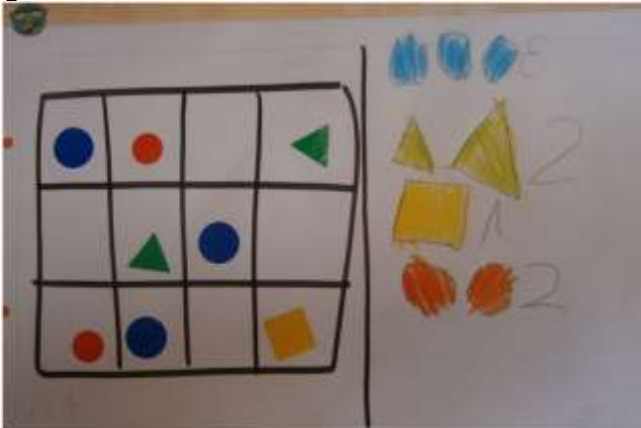


Materials

- Containers for storing all the material..
- Cards with the names of the students.
- Cards with numbers representing the different numbers of letters in the students' names. Example: A card with a 4 (Sara), another card with a 6 (Manolo), etc.
- Wooden clothes pegs with the letters of the names.
- The hard fibres of the brooms are made with cloth and glued to cardboard, to which we will have to attach the sticks to make the broom.




Educator's role	<p>Designing the materials.</p> <p>Management and supervision of group work and mathematically meaningful interaction between children and the material.</p> <p>Asking appropriate questions</p>


Name of the activity	Ordering stickers
Pedagogical moment	■ Playing specialists from 5 to 6 years
Contents logical-mathematical	<ul style="list-style-type: none"> • Writing number. • Ordinal number. • Cardinal number. • Counting. • Arranging, sorting and classifying colours and shapes. • Spatial orientation..
Approach to the activity	<p>The educator shows a grid pattern with stickers of different colours distributed in different quantities (e.g. 4 reds, 6 blues, 3 yellows...). The children have the pattern but no stickers, and their mission is to imitate the educator's distribution. Therefore, they have to count how many red stickers there are, how many blue stickers, and so on. And they will ask the educator for these quantities.</p> <p>However, there is one rule: they must write these amounts on a piece of paper, the request must be made in writing. The children draw the figures associated with each colour (or other symbolic representations of the number in writing), and the educator gives them the stickers of the colour and quantity they have requested.</p> <p>They can then create these patterns themselves in pairs. One child designs the pattern and the other one writes down the request for what he/she needs to imitate it and the partner gives him/her the stickers.</p>
Materials	<p>Sheets with grids and stickers.</p> 




Educator's role

Designing the materials, arranging them in the classroom, giving instructions and managing the activity, interpreting the children's messages and handing out the stickers they ask for.
Management and supervision of group work and mathematically meaningful interaction between children and the material


Name of the activity	Trousers and T-shirts
Pedagogical moment	■ Playing specialists from 6 years old
Contents logical-mathematical	<ul style="list-style-type: none"> Combinatory: probability - counting. Arithmetic: multiplication as Cartesian product.
Approach to the activity	<p>The activity consists of the girls and boys thinking of all the possible combinations between the T-shirts and trousers.</p> <p>For example:</p> <p><i>Debora has three T-shirts (different colours) and two trousers (different colours).</i> <i>In what different ways can she dress?</i></p>  <p>A solution manipulating the material is the most suitable for the children. Saying how many there will be depends on the age of the children.</p> <p>The idea is for them to build their own combination table.</p>
Materials	Felt cut-outs in different colours in the shape of T-shirts and trousers.

	
Educator's role	<p>Design of materials and distribution. Formulation of questions. Management and supervision of group work and mathematically meaningful interaction between children and the material</p>

Name of the activity	Patterns in routines
Pedagogical moment	 Playing specialists from 3 to 6 years
Contents logical-mathematical	<ul style="list-style-type: none"> - Temporal order - Spatial orientation - Qualitative/quantitative classifications
Approach to the activity.	<p>The activity is focused on working on logical-mathematical thinking through routines. We take advantage of different spaces and situations to stimulate this thinking. For example:</p> <ul style="list-style-type: none"> • Setting the table → While the children place the utensils in the corresponding place, they work on spatial orientation: the plate in the middle, the cutlery next to the plate, the napkin under the cutlery, the glass in front of the plate, etc. • Lunchtime → we give directions for the children to sit together: children with the same colour T-shirt; children whose favourite fruit is orange, children who like strawberries best, children who like neither oranges nor strawberries. • After the meal → we ask the children what to do next. • Transfers → we give directions, for example: children with the same hair colour walk together. • Wardrobe → we ask the children where in the wardrobe their name is written: is it under the shoes and clothes or on top? On the right or on the left? • Putting on slippers → While children put on their slippers, they become aware of laterality: first, we put a slipper on our right foot and then on our left foot.
Materials	
Educator's role	<p>Give indications to the children at different moments of daily routines. Ask questions that help children to reason logically: What colour are there more T-shirts? How many children are there in your group? Which is your right foot?"</p>

Name of the activity	Psychomotor game of directionality
Pedagogical moment	■ Playing specialists from 3 to 4 years old
Contents logical-mathematical	<ul style="list-style-type: none"> - Line as path. - Directionality.
Approach to the activity	<p>We move freely through the space, to the rhythm of the music.</p> <p>We move in line and head towards the door. Everyone imitates the movements of the first ones.</p> <p>The previous activity is repeated with different routes, changing the boys and girls at the head and tail of the line. We look for long and short routes.</p> <p>Three places are marked and routes are made between them. Go from B to A without passing through C; go from B to C passing through A....</p> <p>We can make routes between several points following a model represented on the blackboard (wavy, fractional, closed,...).</p> <p>The routes can be coded and given to children in cardboard cards. Therefore, they have to work in pairs to decode them and agree on their meaning.</p>
Materials	<ul style="list-style-type: none"> -Material that we normally have in the classroom, and a music player. -Cardboard cards to code the routes.
Educator's role	Plays music, directs the children's movements, giving instructions and setting an example with his/her body and movement. Encourages pair work promoting discussion and agreements on the meaning of the codes. Graduates the complexity of the movements and the spatial references used.

Name of the activity	Psychomotor game to work on axial (or specular) symmetries
Pedagogical moment	■ Playing specialists from 5 to 6 years
Contents logical-mathematical	- Geometry and spatial orientation: axial symmetries.
Approach to the activity	<p>We move freely in the space. We stand in front of a large mirror (which will be in the classroom), move around the space and look at ourselves in the mirror. We move closer and further away from the mirror, we move one hand and the other, etc.</p> <p>In pairs we play imitation. One of us stands in front of the mirror and moves as he/she likes. The other one stands behind and imitates his or her movement. Then the positions are exchanged.</p> <p>We continue in pairs playing imitation games, but now in the "mirror game". As before, one imitates the movement of the other, but both stand face to face, so that the imitator acts as a mirror image of the other one.</p> <p>Wooden rods are distributed. We continue to play with the mirror, but now the rods are also involved.</p> <p>We get into groups. Some play the role of the figure and the others the image of the figure. We make the figures with our bodies and with the sticks.</p> <p>Following on from the previous exercise, we make the original figure with the sticks or other objects on the floor. A rope is placed on the floor (which acts as a mirror), separating the original figure from its "reflected image".</p>


	
Materials	Materials we have in the classroom, large mirror, rope and wooden rods.
Educator's role	<p>Plays music, directs the children's movements, giving instructions and setting an example with his/her body and movements. He/she promotes observation and discussion about if mirror images are the same as the original images. Also encourages imitation and discussing about symmetries.</p> <p>He/she graduates the complexity of the movements and the spatial references used.</p>

Name of the activity	Psychomotor game to work on turning
Pedagogical moment	■ Playing specialists from 4 to 6 years old
Contents logical-mathematical	Geometry and space orientation through turns and rotation
Approach to the activity	<p>We move on ourselves, turning (we have to change the direction of rotation to avoid dizziness). We continue spinning but on the floor. We get into pairs and look for different ways of spinning together. We look for turns that involve displacement and turns without displacement.</p> <p>We get into groups and look for different ways of turning together. We look for turns involving displacement and turns without displacement. We all get into groups and look for different ways of turning together, with or without displacement.</p> <p>We get into groups and look for objects in the class that we can spin and play with them, with their spinning. We observe how these objects spin, experiment and talk about it with the other children and the educator.</p> <p>We look for objects in the classroom that we can spin and where we can fit inside ourselves, to spin with them (old tyres, wicker baskets, cylindrical boxes, etc.). Children make suggestion about new possibilities or objects; we discuss on it and try the new ideas.</p>
Materials	Material we have in the classroom, music player.
Educator's role	Plays music, directs the children's movements, giving instructions and setting an example with his/her body and movements. He/she promotes children's experimentation of spinning, letting children find objects and new ways to turn. Also encourages reasoning and discussing about the new ideas.

	He/she graduates the complexity of the movements and the spatial references used.
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Name of the activity	Psychomotor proximity play
Pedagogical moment	■ Playing specialists from 4 to 5 years old
Contents logical-mathematical	<ul style="list-style-type: none"> • Orientation in space • Distance (proximity/remote) • Estimating/measuring distance • Shape recognition
Approach to the activity	<p>By doing a psychomotor activity, the educator will encourage the perception of distance: close, far, same distance to, different distance to.</p> <p>Besides, ways to estimate the distance between bodies can be found by children's discussion and agreement (e.g. number of tiles on the floor, number of steps away). Also, the shapes created with the body positions can be identified.</p> <p>At the beginning, we move freely in space, to the rhythm of the music. We keep moving, close to the wall, away from the wall. We stand with our head close to the floor and one foot away from the floor.</p> <p>Close to a partner, my foot close to his or her foot, my elbow close to his or her elbow and our backs away from each other.</p> <p>I move with my partner, always keeping the same distance from him/her. How can we estimate/measure that we are keeping the same distance?</p> <p>We both move keeping the same distance from an object. We move closer and do not move away from the object but keep the same distance. How can we check that we both are keeping the same distance from the object?</p> <p>We all stand at the same distance from an object. We check that we are all at the same distance. How can we estimate/measure that we all are at the same distance?</p>

	<p>We represent our positions with a string. What figure have we created?</p> <p>We move by staying the same distance from two walls. In trios, we move around the space, we move closer or further apart, but we are always at the same distance from each other.</p>
Materials	Objects we usually have in the classroom, string and music player.
Educator's role	<p>Plays music, directs the children's movements, giving instructions and setting an example with his/her body and movements. He/she promotes children's perception and estimation of distance, letting children find ways to check if they are keeping the distance required. He/she graduates the complexity of the movements and the spatial references used.</p>

Name of the activity	Pumpkins and chestnuts
Pedagogical moment	■ Playing specialists from 4 years old
Contents logical-mathematical	Counting, Correspondence between quantity and number
Approach to the activity	<p>The children are given some cards divided into two parts. In one part they are pictures of some pumpkins. On the other part of the card, they can put as many chestnuts as pumpkins. They can also lay chestnuts on the pictures of the pumpkins until all the pumpkins are covered.</p> 




Afterwards, we can ask the children to work in pairs. One will make a card putting the number of pumpkins' stickers that he/she wants on one part of the card. The other child will have to put the equivalent amount of chestnuts on the other part of the card. Both will have to discuss and agree if the result is right. After that, they can exchange roles.

Materials

Cards with pumpkin stickers or drawings, a plate, chestnuts

Educator's role

Encourage children to count the pumpkins and find the right amount of chestnuts or to lay chestnuts on top of the pumpkins stickers. Ask questions like "How many pumpkins are there in your card? Look, has Aneja covered all the pumpkins with chestnut?"
Promote work in pairs, discussion and agreement about the tasks performed

Name of the activity	Weekly Attendance board
Pedagogical moment	■ Playing specialists from 3 to 6 years
Contents logical-mathematical	<p>Numbers and Operations - Identify quantities through different forms of representation (counting, drawings, symbols, writing of numbers, estimation, etc.)</p> <p>Data organisation and processing - Use simple graphs and tables to organise the information collected and interpret them in order to answer the questions asked.</p>
Approach to the activity	<p>During the morning welcome period, the "leader" child marks the presence and absence of the children in the group.</p> <p>The child starts the activity by placing a coloured circle (different each day) for the children who are present and a red circle for those who are absent.</p> <p>Next, he/she counts the attendance of the girls and puts the corresponding number. Next, count the boys and put a number. At the end, she counts all those present and writes down the respective number, which represents the sum of the two numbers.</p> <p>The number of children attending is recorded daily as a graph on a sheet of paper. At the end of the week, during a group meeting, the days with the highest, the lowest or the same number of children present are analysed.</p> <p>It is important to mention that if the "leader" is a younger child, he/she will be assisted by an older child.</p> <div data-bbox="464 1570 1150 1989">  </div> <p><u>Attendance board</u></p>



Attendance Register



Filling in the table/ board






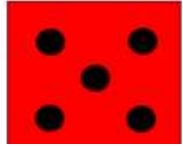
Materials

Cardboard, children's pictures, coloured stickers, a sheet of paper

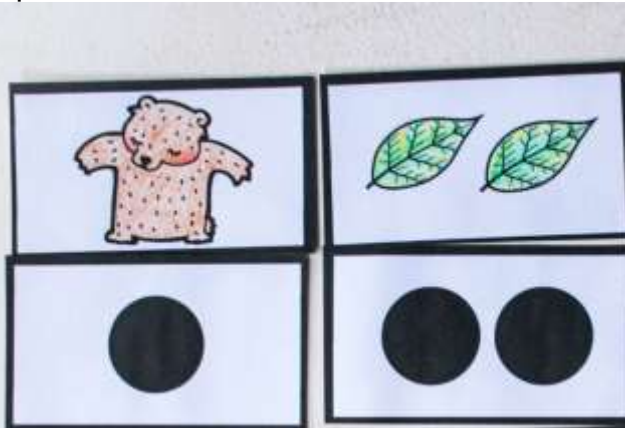
Educator's role

The educator helps children to 'read' and interpret the data they have collected and understand the different frequencies and mode of each distribution especially of the younger age groups.

In addition to class attendance, children can also mark on another board the activities they have chosen during the week. Each day the educator prepares several types of tasks and puts them on the board. The children can choose some of them and try to do them. They mark on the board which ones they have chosen.

Name of the activity	Order to serve your meal +3
Pedagogical moment	 Playing specialists from 3 to 6 years
Contents logical-mathematical	Order, shapes, colours, count up to five
Approach to the activity	<div data-bbox="459 763 783 1592">  1  2  3  4  5 </div> <p>At lunch time, each place will have one of the following plasticized pictures stuck at the table</p> <p>The children sit at the tables The sequence of serving food to children can be done in four different ways:</p> <ol style="list-style-type: none"> We call children by the geometric shapes they have at his/her place: e.g. circle, triangle, square, star,, rectangle... We call children by the number at his/her place Children are called by the number of dots in geometric shape: e.g. one dot, two dots, three dots, four dots, five dots,... We call children by the colours of the geometric shape: e.g. yellow star, blue circle, red square, green triangle, orange rectangle, <p>Example: "Now children who have a red star on their table can come for food"</p> <p>Children listen carefully and check if they have the shape/colour/number that we are calling. When they identify it, they come to the place where food is distributed. We serve those children their food and when they sit back we call another shape/colour or number.</p> <p>This method can also be used for the sequence of cleaning up; eg: "Children with a blue shape can clean up first."</p> <p>If we are serving hot meals, we can ask the children, for example, "Who has number 3 on the table?" These children will answer and we</p>

	will take the food to them.
Materials	Plasticized pictures of shapes or numbers for each dinner place. Glue or cellar tape to stick them at the tables
Educator's role	The adult will encourage attention and observation. Also can ask questions like "Can you help your friend to identify his/her sticker? Are there many red stars? Can you see anything with that shape in this room?" with the aim to favour rational thinking and mathematical ideas.


Name of the activity	Puzzle with dots and pictures
Pedagogical moment	■ Playing specialists from 5 to 6 years
Contents logical-mathematical	<ul style="list-style-type: none"> - Counting, arranging one to one, editing and comparing. - Correspondence between number of points and number of the image.
Approach to the activity	<p>The educator cuts out cards of any size from stiff paper/cardboard. He/she says numbers that the children have to draw with dots on one side and, on the other side, stick a picture (e.g. leaves) with the quantity represented in the dots.</p>  <p>Then the educator has to cut each card in half with different cuts: straight, oval or oblique. Children make a whole of two parts by connecting a certain number of dots with the corresponding number. By associating symbols with objects, they realize that a certain amount is related to a certain number.</p>


	
Materials	Stiff paper / cardboard, felt-tip pen, scissors.
Educator's role	Giving instructions and helping with counting if needed. The educator observes the children's verbalisations and reasoning. He/she also encourages them to work in pairs and to ask each other some tasks


Name of the activity	Recycling rubbish
Pedagogical moment	■ Playing specialists from 3 to 6 years
Contents logical-mathematical	<ul style="list-style-type: none"> • Sorting by colours • Logical thinking
Approach to the activity	<p>The educator puts pictures of different coloured rubbish bins on the wall so that the children can sort the rubbish and also name the rubbish they put in the bin.</p> <p>Each picture to be sorted in the bins has the answer on the back (e.g.: A jam jar has the colour green on the back).</p> <p>Children will do this task in pairs, placing appropriate objects on the photos of the rubbish bins, and agreeing on a decision in pairs. They will try not to look at the colour on the back. Afterward, we all can check the inscription on the back and assess the correctness of the choice.</p> <p>If children cannot figure out where the rubbish belongs, we can give them a little help by telling them what material it is made of. They can discuss in pairs and if they still don't know, then they can look on the back of the picture.</p>
Materials	- Photos of the different waste bins (glass, paper, organic, plastic and other waste).

	<div data-bbox="727 331 1149 790" data-label="Image"> </div> <p data-bbox="443 835 1038 869">- Pictures of waste for each bin. Example:</p> <div data-bbox="794 960 1153 1120" data-label="Image"> </div> <p data-bbox="443 1193 1433 1227">- Markers to indicate the colour of the corresponding bin on the waste.</p>
<p>Educator's role</p>	<p>Arranges the materials as indicated and guides the children to classify the images appropriately if necessary. Encourages discussion and agreement in pairs. Depending on their knowledge of recycling, it will be necessary to work on these contents first.</p>

Name of the activity	Riddle with Dienes blocks				
Pedagogical moment	■ Playing specialists from 4 to 6 years				
Contents logical-mathematical	<ul style="list-style-type: none"> • Logical thinking • Attribute classification 				
Approach to the activity	<p>At this age, children can partially perform a classification according to criteria. They have the intuitive idea of class inclusion (a set of things is part of a larger set) and part-whole relationship. Example: if you organise the Dienes blocks by colour, you will notice that within a set (e.g. red) there are different sizes.</p> <p>The children are given riddles that lead them to look for the block that fulfils the different attributes. For example:</p> <table border="1"> <tr> <td> <p>Riddle 1</p> <ul style="list-style-type: none"> • I have three sides. • I am red. • I am big. <p><i>Who am I?</i></p> </td><td> <p>Riddle 2</p> <ul style="list-style-type: none"> • I am blue or red. • I have three sides. • I am not big. <p><i>Who am I?</i></p> </td></tr> <tr> <td> <p>Riddle 3</p> <ul style="list-style-type: none"> • I am not red. • I am not blue. • I have four sides. • I am small. <p><i>Who am I?</i></p> </td><td> <p>Riddle 4</p> <ul style="list-style-type: none"> • I am not big. • I have no sides. • I am yellow. <p><i>Who am I?</i></p> </td></tr> </table> <p>Later, older children (from 5 to 6) can ask each other riddle in pairs using Dienes blocks</p>	<p>Riddle 1</p> <ul style="list-style-type: none"> • I have three sides. • I am red. • I am big. <p><i>Who am I?</i></p>	<p>Riddle 2</p> <ul style="list-style-type: none"> • I am blue or red. • I have three sides. • I am not big. <p><i>Who am I?</i></p>	<p>Riddle 3</p> <ul style="list-style-type: none"> • I am not red. • I am not blue. • I have four sides. • I am small. <p><i>Who am I?</i></p>	<p>Riddle 4</p> <ul style="list-style-type: none"> • I am not big. • I have no sides. • I am yellow. <p><i>Who am I?</i></p>
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Materials	<ul style="list-style-type: none"> • A worksheet with riddles 				

	<ul style="list-style-type: none"> • Dienes blocks 
Educator's role	<p>Designs worksheets with riddles about logical properties. Hands out the cards and reads them out, this can be dramatized to catch children's attention and interest. Asks appropriate questions and offers clues where necessary.</p>

Name of the activity	Science experiment
Pedagogical moment	■ Playing specialists from 3 to 6 years
Contents logical-mathematical	- Logical thinking: cause and effect
Approach to the activity	<p>The educator takes a glass of water (a big glass) and tells the children that they are going to put some oil in the water. Then, he/she asks the children what they think it will happen and listens to their answers without giving his/her.</p> <p>After that, children do the experiment and we all observe what happens. The educator asks them “Why does the oil float?”</p> <p>He/she listens to the children's different answers and encourages them to explain themselves, trying that they agree on a common answer.</p> <div data-bbox="807 1173 1083 1583" data-label="Image">  </div>
Materials	Glass, oil and water
Educator's role	Explains what they are going to do, lets children experiment and think. Promotes discussion and doesn't anticipate the right answer

Name of the activity	Shadows and fingers up to 5
Pedagogical moment	■ Playing specialists from 3 to 5 years
Contents logical-mathematical	Shapes, counting up to five, property of objects, correspondence, orientation, identification of number with quantity
Approach to the activity	<p>At first, we ask children how old they are, and invite them to show us with their fingers. Then we will ask them to make it in front of the light and to pay attention to the shadows, which appear behind their hands and compare it with the outlines we have prepared before and stuck on a wall.</p> <p>We will encourage them to cover the outline on the wall with their hands.</p> <p>We can also ask children to say out aloud the number that the adult shows with his/her fingers or with its figure.</p> <p>We can complicate it a bit more by asking the older children to show the number with their fingers when the adult says it out aloud.</p> 
Materials	Outlines of hands with one, two, three, four and five fingers and its correspondent number.




A safe source of light, which has enough power to make a shadow by the daylight.

Educator's role

He/she will encourage attention and observation. Also can ask questions like "Lara, can you tell me which number I'm showing with my fingers?", "Can you show this number to me with your fingers?", and "Can you cover your hand with the outline?", "This is a shadow, it appears where the objects cover the light", "Can light go through our hands?"

Name of the activity	Surfaces and psychomotor skills
Pedagogical moment	■ Playing specialists from 3 to 4 years
Contents logical-mathematical	<ul style="list-style-type: none"> • Quality: size, texture, etc. • Geometry: shapes and surfaces.
Approach to the activity.	<p>We move freely to the rhythm of the music.</p> <p>We move around the classroom, touching and feeling the different objects we find.</p> <p>We pick up an object, close our eyes and concentrate on feeling the surface of the object, its shape, its roughness, its size, etc. We do the same with the walls, the floor, etc.</p> <p>We move touching one wall until we arrive to another one. We feel the confluence between two walls and try to guess their shape. We go from corner to corner, trying, again, to determine its shape.</p> <p>We look for abrupt changes of direction, incoming, outgoing, peaks or corners in the objects of the class.</p>
Materials	Classroom, objects we have in the classroom and music player.
Educator's role	Plays music, directs the children's movements giving instructions and setting an example with his/her body and movements. Graduates the complexity of the movements and the spatial references used. Promotes reflexion about shapes, surfaces, textures, etc.


Name of the activity	The number line
Pedagogical moment	 Playing specialists from 4 to 5 years
Contents logical-mathematical	<ul style="list-style-type: none"> • Numerical sequence. • Ordinal number. • Forward and backward counting. • Basic operations.
Approach to the activity.	<p>Questions are asked about the character's path on the number line. For example:</p> <p>1st.) Which station does the train arrive at?</p> <p>2nd.) How many stations has the train advanced? Add</p> <p>3^o.) Which station did the train leave from?. Subtract</p> <p>4^o.) Did the intersection occur?</p> <p>The level of complexity can be increased:</p> <p>1st Simulate it with your body, in pairs.</p> <p>2nd Simulation with cars, squirrels...</p> <p>3rd Make a prognosis, and check with the previous steps if they have made a mistake.</p> <p>Children may find difficulties associated with the lack of acquisition of some level of counting (Fucson and Hall).</p>
Materials	<ul style="list-style-type: none"> • Number line drawn on a strip of paper. • A character that goes along the line: train, frog, squirrel, etc. <div data-bbox="539 1579 1126 1805" data-label="Image"> </div> <p>-Alternatively we can also have a number line, not in a piece of paper, but drawn on the floor, on the playground, on the lawn. And can be constructed with the help of children. They can have</p>

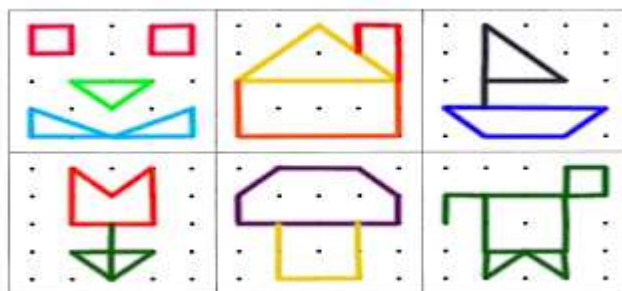
a character that moves along the line, or they can moved themselves on it.



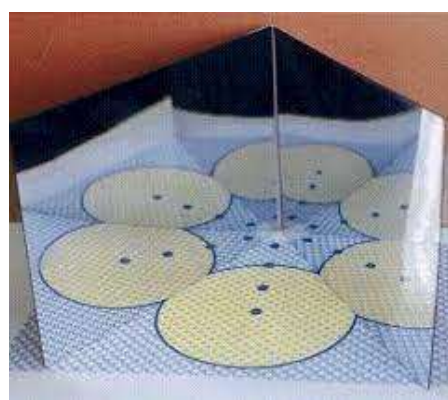
Educator's role

Designing the materials and their distribution, asking questions for the children to answer by exploring counting movements and techniques supported by the number line, monitoring that there is mathematical learning that lays the foundations for arithmetic calculation.

Name of the activity	The reflection of my drawing
Pedagogical moment	<p>■ Playing specialists from 3 to 6 years old</p>
Contents logical-mathematical	<ul style="list-style-type: none"> - Mirror effect - Symmetry - Geometric bodies - Shapes. - Space: limits, interior-exterior
Approach to the activity.	<p>We give the children a piece of paper. We fold the paper in half so a symmetrical axis is created. Then we unfold it. On one side of the paper the children start painting with water colours and when they have finished, they quickly fold the paper again so the painting is copied on the other side. Thus, the children create their own art.</p>  <p>We can also prepare a tool to experiment with symmetry using a geoplan. Children work in pairs, one creates a pattern on the geoplan and the other reproduces it symmetrically using a mirror.</p>



A geoplan



Geoplan reflected on a mirror


Materials


- Watercolours
- Paper
- Brushes
- Mirror
- Geoplan

Educator's role

Give instructions and promote rational thinking with question such as "Are both sides of the paper identical?", why?" "Can you copy what you see on the mirror?". Let the children think, give their own answers and discuss among them.

Name of the activity	The unbreakable chain: The very hungry caterpillar
Pedagogical moment	■ Playing specialist from 3 to 4 years old
Contents logical-mathematical	Ordinal numbers: 1 to 5.
Approach to the activity.	<p>In this activity, we will promote the counting sequence in its phase 2: Unbreakable chain. For this activity, we will use the tale "The very hungry caterpillar". We will enumerate the events of the tale, so the kids learn the ordinal numbers. We will use pictures to represent the situations.</p> <div data-bbox="751 1055 1077 1292" data-label="Image"> </div> <p>This is the order of the story:</p> <ol style="list-style-type: none"> 1° The caterpillar is hungry. 2° The caterpillar eats. 3° The caterpillar sleeps and rests. 4° The caterpillar turns into cocoon. 5° The cocoon transforms into a butterfly.

	
Materials	<ul style="list-style-type: none"> • Images of the actions. • Wooden sticks to sustain the images. • Glue. • Laminator. • Posters with the ordinal numbers 1st, 2nd, 3rd, 4th and 5th.
Educator's role	<p>The role of the educator is to show and to describe the pictures. Therefore, the children can remember the sequence of the story (1st, 2nd, 3rd, 4th and 5th) and count the steps of that sequence. He/she can ask questions like "What does the caterpillar do first, sleeping or eating", "What comes first, the cocoon of the butterfly?"</p>

Name of the activity	Tina and geometry
Pedagogical moment	■ Playing specialists from 3 to 6 years old
Contents logical-mathematical	<ul style="list-style-type: none"> - Measurement: space (up/down, here/there) and size (big, medium, small). - Geometric elements: line, point and geometric shapes (square, rectangle, circle and triangle).
Approach to the activity.	<p>The activity is based on a story entitled "Tina, the tortoise" (see below). It tells the story of a turtle that has lost its shell. Through the narration of the story, different activities will be carried out with the children to work on geometry.</p> <p>The activities are organised in such a way that the students rotate in small groups and all of them meet in the final activity where they will find the shell, with the intention of reinforcing teamwork and reducing competitiveness.</p> <div data-bbox="919 1272 1286 1480" data-label="Image">  </div> <p><u>Activity 1. FOLLOW THE PATH</u></p> <p>To work on the line we will make a path on the floor, the children will pass over it, the lines will be segments that join and not a continuous straight line. There are two ways of doing this activity: one is by working on the flat surface, so that we will draw the path on the floor with chalk or by placing pieces of tape, and the other is by working on textures, where the path will be made with different textures (a part of cotton, another of grass, another of flat stones so that they do not prick, etc.) and the children will walk over it barefoot.</p>



Activity 2. TORNADO

By using pieces of silk ribbon or other similar material and with the help of the story, we will put them in a situation to simulate a tornado, shaking the ribbons individually, generating waves and spirals (thus working on a different type of line to the previous activity).



Activity 3 CLIMBING THE TOWER

This consists of stacking cardboard boxes of different sizes to build a tower. The children will do this indiscriminately, i.e. without taking into account that the biggest box will go underneath, the second biggest box and so on. The aim of the activity is to work on the rectangle in different dimensions.



Activity 4. GREETING THE SNAKE

We will place the children on a sandy path in which there are snake tracks. Everyone will manipulate the sand to create their own snake tracks, making straight lines, winding grooves, dots and any shape they can think of.



Activity 5. CROSSING THE RIVER

We will cross a river made with pieces of cardboard cut into circles of different sizes, simulating that they are stones to be skipped. The larger ones will be jumped over with feet together and the smaller ones with only one foot.



ACTIVITY 6. GEOMETRIC SHAPES

In some of the previous activities we have worked on shapes individually, in this one we will work together, identifying everyday objects with specific shapes (square/rectangle, circle and triangle). The task consists of grouping objects that have the same shape. To do this, we will place rubber bands with different shapes on the floor and the children will have to classify where each object goes (e.g. circle rubber band with ball and wall clock, triangle rubber band with square and clothes hanger, etc.).



Activity 7. CONNECTING THE DOTS

The adult will draw the head (with eyes), legs (with hooves) and tail of a turtle, excluding the shell, so that the children can finish the activity by finding Tina's shell.

Materials

Act1.

- Non-textured path: chalk or tape to trace the path.
- Textured path: cotton wool, grass, flat stones, etc.

Act 2. Soft tape, 10 cm, one for each student.

Act 3. Cardboard boxes of various sizes, between 10 and 15.

Act 4. Sand.

Act5. Cardboard cut-out in the shape of circles, of different sizes, simulating river stones.

Act6. Everyday objects in the shape of circles (e.g. ball, wall clock), triangles (e.g. square, clothes hanger), squares (e.g. post its) and rectangles (e.g. book, pencil case) and rubber bands in the same shapes.

Act 7. One thick chalk for each child.

"Story Tina, the tortoise".

This morning I spoke to Tina.

- Do you know who she is?

Tina is a tortoise who lives in a very leafy forest with very, very tall trees and many animals.

One day Tina, after having a wonderful nap, woke up a bit confused, she didn't know where she was, and suddenly, she realised that she had lost her shell!

It turned out that Tina sometimes starts walking through the forest while she is sleeping, and so every now and then, she appears in an unknown place, as if by magic, just as it happened to her now.

Tina was a bit nervous, she didn't know how to get back and she didn't know where she could have left her shell, but she was very brave and she loved adventures, so she decided to set off on her journey in search of the shell.

- "Would you girls/boys like to help Tina the Turtle look for her shell? How about going with her? Would you like to go on this adventure with Tina the Turtle?"

Tina the Turtle told me that we had to go through three places and she was waiting for us at the end, to see if we could find it together.

If I remember correctly, Tina told me that we have to go through a path. She told me that she remembers singing a song her mother used to sing to her as she went along: "Na na na na the tortoise Tina".

- Ready girls and boys? Look, I see the road! Let's all go together".
(ACTIVITY 1)

- (At the end of the road) Look out girls and boys! Look!
(ACTIVITY 2)

(The educator points to the horizon pretending that a tornado is coming. The children pick up the ribbons from the ground).

- Oops, it's a tornado! (The tornado can be moved around the space to work on spatial orientation). To finish the activity, the ribbons are left on the floor.

It looks like the tornado has passed, let's keep moving and see if we can find the shell.

- Look, that's the tower over there, it's so tall, so big! That's the second place Tina told us to go through.

- It looks like the tornado came through here and destroyed the tower. Shall we build the tower together? (ACTIVITY 3)


(Let the children play freely with the boxes. When the educator thinks that this part of the activity is finished, the story continues).


- We have found snake tracks! (ACTIVITY 4)


(We move on to the next scene)

- Look girls and boys! We have arrived at the river, the third and last place the turtle had told us about. (ACTIVITY 5)

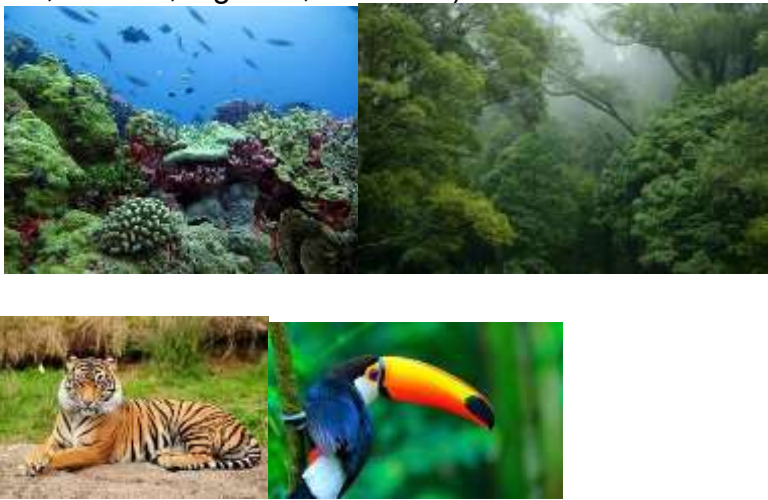
	<p>(We continue walking)</p> <p>What has happened here? All the objects are jumbled up. Let's go and see if we can find Tina's shell here. (ACTIVITY 6)</p> <p>- It's all sorted out. Oh! Tina's shell isn't here. Let's keep looking.</p> <p>(We keep walking and finally come across a pile of dots).</p> <p>- What are these dots doing here? I have an idea. Let's take this chalk and connect the dots with lines. (ACTIVITY 7)</p> <p>- We've just found the tub shell. Look, look, look. Congratulations!</p>
<p>Educator's role</p>	<p>Before the activity, the educator should plan and decide where to place the route, taking into account the number of children and the space necessary for them to carry out the activities comfortably and safely, and ensure that the materials are available for them to carry out the activities.</p> <p>During the activity, the educator is in charge of maintaining a climate of trust in the activity area, avoiding situations that could generate stress, giving the children time to experiment, motivating them but without pressure, creating habits of care and respect for the materials. He/she is also the person in charge of telling the story in a way that serves as a guide to discover the activities and introduce the children to the marvellous world of geometry.</p> <p>In addition, the educator should transmit positive emotions, showing joy and interest, which will encourage the children to carry out the activities with motivation.</p> <p>On the other hand, it should be observed whether or not the children enjoy the proposed activity and if the objectives are being achieved, in order to make a reflection and document it and thus modify what is necessary for future implementations.</p>






Name of the activity	Vegetable garden
Pedagogical moment	■ Playing Specialists from 3 to 6 years old
Contents logical-mathematical	<p>Geometry and measurement:</p> <ul style="list-style-type: none"> - Understand that objects have measurable attributes that allow them to be compared and ordered. - Choose and use units of measurement to respond to everyday needs and questions. - Understand the importance and usefulness of mathematics.
Approach to the activity	<p>The activity is about planting vegetables in the garden. Each plant has to be planted at a certain distance from each other. Tools are needed to measure this distance.</p> <p>First the children have to observe, determine the distance and try with the objects that the educator puts at their disposal (game pieces, markers, rulers of different lengths, etc.) to choose the most suitable tool to measure the distance.</p> <p>Younger children will observe and manipulate the rulers, discovering that the rulers have numbers and lines.</p> <p>Older children will have a better understanding of the function of the ruler.</p> <div data-bbox="442 1442 1230 1736">  </div>

	
Materials	Pieces of different sets, pens and rulers of different lengths.
Educator's role	<p>The educator's intervention is based on the questioning of the instruments used:</p> <p>"What are the rules for?", "What are you observing?", "With what materials are we going to measure the distance between the plants?"</p>

Name of the activity	Weighing and measuring
Pedagogical moment	■ Playing specialists from 5 to 6 years old
Contents logical-mathematical	Sizes, weight, quantity, comparison and shapes.
Approach to the activity.	<p>Scales with different materials are placed on the children's tables so that they can learn how to use this tool and compare weights. For example: a large leaf on one side of the scales and a small chestnut on the other. The children may be very surprised that something smaller can be heavier than something bigger.</p> <div data-bbox="603 1055 1276 1485">  </div>
Materials	<ul style="list-style-type: none"> - Scales - Materials: Branches, leaves, fall fruit.
Educator's role	He/she will ask the children questions about what they see, they will try to discuss the comparisons heavy – light, big – small. Besides, he/she will give them ideas about what to weight on a scale.



Name of the activity	Where do animals live?
Pedagogical moment	■ Playing specialists from 3 to 6 years old
Contents logical-mathematical	<ul style="list-style-type: none"> - Logical reasoning - Classification - Animal-habitat correspondence
Approach to the activity.	The educator places pictures of natural habitats on the table and gives the children pictures of animals living in a certain habitat to classify them appropriately. Each animal should be placed in its own habitat.
Materials	<p>Pictures of different environments (sea, forest, desert) and animals (a lion, a shark, a giraffe, a bear ...).</p> 
Educator's role	<p>Arrange the materials as indicated and guide the children to classify the images appropriately if necessary. It is important to use children's personal knowledge and not to provide solutions immediately, let children talk and correct among themselves.</p> <p>Depending on their knowledge of animals and their habitats, it will be necessary to work on these contents beforehand.</p>

Name of the activity	Where is the treasure?
Pedagogical moment	 Playing specialists from 3 years old
Contents logical-mathematical	<p>- Measurement: space (inside/outside, up/down, far/near, in front/behind, from/to, open/closed and to where).</p> <p>-Spatial sense, orientation in space</p>
Approach to the activity.	<p>This activity works on orientation. A series of exercises will be carried out to experience the situation in space with the children's own bodies.</p> <p>At the beginning of the activity, an assembly will be held where the children will be told that we are on an island where there is a hidden treasure. To find the treasure, we will tell them a story (see below) in which they will have to pass a series of tests.</p> <p>The tests are as follows: (at the beginning of each exercise, you will find a pictogram indicating the action to be carried out):</p> <ul style="list-style-type: none"> · Test 1 → follow the route traced by means of ropes. · <div style="display: flex; justify-content: space-around; align-items: flex-end;"> <div style="text-align: center;">  <p>Test</p> </div> <div style="text-align: center;">  <p>Pictogram</p> </div> </div> <ul style="list-style-type: none"> · Test 2 → hoops will be set up and the children will have to jump in and out of the hoops. <div style="display: flex; justify-content: space-around; align-items: flex-end;"> <div style="text-align: center;">  <p>Test</p> </div> <div style="text-align: center;">  <p>Pictogram</p> </div> </div>

Test 3 → cones with bars will be placed and they will have to pass underneath the bars.



Test

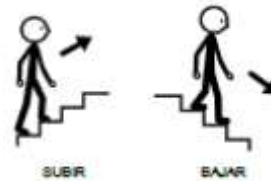


Pictogram

Test 4 → use a mat in the shape of a ladder where the children have to climb up and down the ladder..



Test

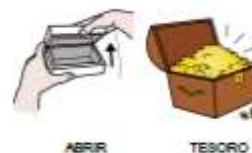


Pictogram

Test 5 → put a closed box containing the treasure chest inside and together you will have to open it.




Test



Pictogram

The following song will be played throughout the activity:
<https://www.youtube.com/watch?v=K3pU67zxPOM>

	<p>At the end of the activity, the following song will be played: https://www.youtube.com/watch?v=ltfLqrh-hfs, in order to end the activity in a dynamic and fun way.</p>
Materials	<ul style="list-style-type: none"> • For the chest: cardboard box, sweets, markers and tape. • For the pirate hat: glue, markers, black cardboard and scissors. • For the tests: ropes, hoops, cones, bars, soft psychomotor material to form a ladder. <div style="text-align: center;">  <p><u>Story: "In Search of the Treasure"</u></p> <p>Hello boys and girls, welcome to Treasure Island. We are pirates!!!! . Shall we tell you a secret? We have been told that there is a hidden treasure on this island but we are afraid to go and look for it on our own. Do you want to come and look for it with us? Because we know that you are very brave. Are you ready to look for the treasure? But one thing, we have to be careful because we have been told that the way is very difficult. (At this point, they will be given a pirate hat.) Here we go! Boys and girls, first we have to get to the other side of the bridge, so we are going to cross it, but be careful because it moves a lot and we have to be very careful while we are walking so that we don't fall off. (Test 1) We have reached the other side of the bridge, we have been told that the treasure is near a river. Do you hear water? Yes, look where the river is! Let's cross it to find the treasure, but be careful, to avoid getting our feet wet we have to jump over the stones (hoops) (Tests 2). Oops, the treasure is not there, shall we go on looking for it? (the children together with the teachers keep walking) Look at a cave! Let's go in and see if the treasure is inside. Have you found something? Yes? We have a clue! (Test 3). Let's see, let's see, the clue tells us that the treasure is near us, but we have to climb a mountain to get it. Are you ready to climb? Let's go for it! (teachers and children reach the top of the mountain). (Test 4) Can you find something? don't you? look over there! Do you see that shiny thing? let's see what it is, but we have to climb down the mountain. Look boys and girls, do you see how it shines, do you think there's something inside it? Let's find out what it is, I'll try to open it, although I don't know if I can do it by myself (the adult pretends to open the box but can't). Oops boys/girls I can't open it, you, who are</p> </div>

	<p>very strong pirates, I'm sure you can, shall we all try together? On the count of three, we force and open the box: one, two and three That's it, we've opened it! Look, we've found it, here's the treasure chest, shall we open it? Great! The treasure is sweets and chocolate; and since you have done so well and have been so brave all the way, let's share the treasure.</p>
Educator's role	<ul style="list-style-type: none"> • He/she will observe whether the children know how to situate themselves in the space by means of the different tests. • He/she will also check if any of the children have difficulties when carrying out the tests, in which case they will be helped or the activity will be modified in order to be carried out successfully. • Another task to be carried out by the educator during the activity is to verbalise the concepts of orientation in space (inside/outside, up/down, far/near, in front/behind, from/to, open and closed or to where) so that the children can learn them by doing the exercises.