



LEARNING OUTDOORS:
LIFELONG LEARNING

Teacher's guide



INDEX

- INTRODUCTION
- EDUCATIONAL THEORIES
- PURPOSE
- TEACHER'S ROLE
- MATERIALS AND RESOURCES
- SECURITY AND SAFETY
- METHODOLOGY
- ACTIVITIES
- ASSESSMENT
- CONCLUSION

01 | INTRODUCTION

This guide is the result of an Erasmus Project done by 5 countries: Belgium, Finland, Greece, Portugal and Spain. This Erasmus Project has been titled *Learning Outdoors: Lifelong Learning*. To complete the goals of the project and to elaborate this guide, all teachers participants have had a lot of discussion about what we understand by learning outdoors.

Therefore, we have come to the conclusion that in this project, we learn outdoors by going out from the school building.

It can be teaching, learning and experiencing in the nature, or it can be understood by visiting places that are important for the students to learn as parts of their own culture and living environment.

In some cases, learning outdoors can also be understood as opening your mind and learning *outside the box*, which means constant reflection and development of your own work, as teachers.



02 | EDUCATIONAL THEORIES

The term **outdoor education** has been in use for much longer than 20 years. It refers to integration of theoretical knowledge with practice in nature and outdoor environments (Bartunek, Brügge, Fenoughty, Fowler, Hensler, Higgins, Laschinki, Löhrmann, Neißl, Neuman, Nicol, Seyfried & Szczepanski, 2002; Elliott & Davis, 2008). Outdoor activities are known as taken out of classes and enable learning in a natural environment. They are experimental, open air learning methods based on interdisciplinary curriculum which enables students to learn a subject more permanently and to bear more positive feelings towards both nature and to their friends (Farmer, Knapp, and Benton, 2007 at (Taş & Gülen, 2019).

Outdoor activities focus on the relationship between nature and kids, while they use many disciplines in a natural environment and also use the interdisciplinary curricula (Uhls et al., 2014). While being out of the classroom, kids can use all sense organs, increasing the permanence of learning (Taş & Gülen, 2019), actively participate and learn by doing, change theoretical knowledge into practice, record it in the long-term memory and create solutions to problems they encounter in daily life, based on what they have learned. Research shows that “direct, ongoing experiences of nature in relatively familiar settings remains a vital source for children’s physical, emotional, and intellectual development” (Kellert, 2005:81). Interaction with nature is important for the kid’s development, while kids growing up in an artificial environment do not possess enough sensitivity to nature (Herrington & Studtmann, 1998). Outdoor can enable kids to make effective use of time, both physically and mentally (Towell, 2005). Learning outdoors may be achieved in places like museums, zoos, botanical gardens, aqua parks, playgrounds, forests, and rivers (Türkmen, 2010).

The idea that education should be given in nature dates back to **Aristotle and Plato**. Years later, philosophers and scientists have emphasised that kids should frequently be given an opportunity to be in nature. **Rousseau** regarded nature as more valuable than formal schooling for learning and that it is essential not only to nurture kids’ cognitive development, but also to promote their physical welfare. **Pestalozzi** insisted that kids’ endeavours to learn from nature are not sufficient for gaining necessary skills; therefore, teachers should introduce natural objects that give them the opportunity for sensory experiences (Wellhousen, 2002). **Froebel** regarded the game as the best learning method for kids, and he highlighted that all kinds of outdoor activities should be considered at least as valuable as indoor activities. Dewey considered that kids’ intrinsic motivation to make physical exercises is built more than school-like activities on their learning and development (**Dewey, 1889**).

Gleitman and Liberman (1995) also emphasized the crucial role of outdoor environment on kids' intellectual development. **Davies (1996)** indicated that outdoor activities, offer kids a chance to do exercise by using their fine and gross muscles and mostly require being active within the environment. He stated that the environment including natural elements provides many opportunities for kids to develop their motor skills, such as coordination, balance, and agility as well as protect children from childhood obesity (Bundy, Luckett, Tranter, Naughton, Wyver, Ragen, & Spies; 2009; Moore, 1997).

Gair (1997) listed six features of an outdoor education programme:

1. Education occurs outdoor. It does not have to be offered in a classroom.
2. Participants get directly involved in activities.
3. Real objects are used. Activities are implemented by using real objects and the senses.
4. Instead of memorising available knowledge, relations between objects or events are discovered and described.
5. Learning through practice and experience activates more than one sense.
6. Since the environment of an outdoor education programme is different from that of an enclosed classroom, children find outdoor activities interesting and fun.

For **Brookes**, deep outdoor education develops alternative understandings of the nature of knowledge, the role of science, the ways in which nature should be valued, the relationships between the individual and the wider community (Thomas, 2005). He insisted that outdoor education should be more responsive to local situations and pay careful attention to particular regions, communities, and their histories. Likewise, **Stewart (2004)** was critical of some outdoor practices that seek to develop human-nature relationships or connect with nature and his concern was that despite the good intentions of some authors (see Martin, 1999; Martin & Thomas, 2000; Thomas & Thomas, 2000) the approaches they describe to help participants to connect with nature, may actually end up subjugating nature.

Martin (1998, 1999) coined the term critical outdoor education to describe a similar form of outdoor education based on critical theory. Critical theory seeks to expose the operation of power and to bring about social justice by redressing inequalities, and promoting individual freedoms within a democratic society (Habermas, 1984, 1991 at (Thomas, 2005). From Martin's (1999) perspective, critical outdoor education "goes to the bush, not just to recreate and have fun, but to look back with a critical perspective at the contexts left behind, particularly to those sets of beliefs which help shape human-nature relationships" (p. 465). **Cooper (1991, 1994, 1997, 1998)** argued that outdoor education could make an important contribution to educating for sustainability (Thomas, 2005).

Ouvry, (2003) & Rivkin (2000) highlighted that outdoor environment develops kids' observation skills by letting them follow whatever is going on in the surroundings including behaviour of animals, change in weather conditions, or progress of construction. **Rivkin (2000)** stressed that kids have many opportunities to get to know different people or animals while playing outdoors. Furthermore, children also have a chance to experience all types of play with their peers and compare their behaviours with each other through those experiences (Creasey, Jarvis & Berk, 1998). Additionally, **Chakravarthi, Schilling, Hestenes & McOmber (2007)** asserted that even if an outdoor environment just includes grass as a natural element, it will be sufficient to promote children's physical skills. Finally, **Stone & Faulkner (2014)** found that spending time outdoors increased physical activity, reduced immobility and prevented excessive weight gain.

By considering the value given to the outdoor environment through the centuries and also contributions to developmental areas of children, it would not be surprising to conclude that outdoors might be superior to indoors since this type of environment has more flexible and useful conditions for variety of activities for children, including both inappropriate and allowable activities in indoor settings (Parsons, 2011; Rivkin, 2000; Talbot & Frost, 1989).

03 | PURPOSE

To start with, this guide is written by and for teachers.

The guide contemplates basic information which has been discovered through professional trainings, a lot of discussions and, above all, through pedagogical reflection of our own practises.

The main purpose of it is to provide teachers with the opportunity to begin teaching the curriculum outdoors with essential ideas and resources to help plan the educational contents.

At the same time, it is an invitation for those teachers who believe that learning outdoors benefits students development and wants to improve their own practises or include new ideas.



04 | TEACHER'S ROLE

Feeling safe is essential for the child. The basis of this feeling is given by the emotional security that a warm relationship with the adult, made of tenderness and trust, provides. This relationship is one of the driving elements of their taste for free and autonomous activity, a source of pleasure and experiences that benefits a harmonious development, sustained by a feeling of effectiveness in their relationships with adults and in what each child undertakes. The taste of the activity quickly wears off if it is not fuelled by this affective relationship.

Judit Falk

Who is the accompanying adult?

The adult is that person who accompanies and guides the rhythms and time of the children without judging, accommodating the needs through active listening in order to be able to respond to these concerns, initiatives, interests... At the same time, the adult is a person attentive, present, who takes care of the children in front of him/her, giving importance to them. This adult, when planning the educational action, takes into account the relationships, the spaces, the time, and materials necessary for a meaningful learning and to give answer to all the necessities of the group.

On the other hand, this adult reflects on their own educational practice and proposes to continue improving by sharing strategies with other colleagues, searching for resources, training to keep learning...

With all of this, it is essential that the adult provides security and confidence to the child, sharing the rules and limits respectfully in order to create a firm bond that promotes safe exploration of the environment.



In this accompaniment, the adult must take into account:

To be...	In order to...	By...
Curious	Encourage children's curiosity. Realise and be aware that important facts are happening each moment in nature. Elaborate good questions, both with children and also with oneself.	Paying attention to details. Being calm and avoiding rushing. Proposing hypotheses, offering resources to investigate and drawing conclusions.
Attentive	Observe the different needs and thus be able to offer an answer, support... Discover relationships. Stretch the children's concerns and interests.	Being close without invading, discreetly. Being really present, but with a distance to respect their privacy, space...
Provocative	Arouse curiosity and motivation. Make children think, reason, consider, imagine, get curious... Enrich in depth learning.	Making good questions. Sharing more questions than answers. Suggesting challenges. Making hypotheses such as: what would happen if...
Passionate	Transmitting passion and admiration to nature and to children. Believe in the different learning processes that children can experience in Nature.	Looking for connections with the adults' own interests. Asking colleagues for help in order to find more connections with nature. Looking for experts related to nature so they can give us resources to include more dynamics in the learning process.
Observant	Take advantage of all the opportunities offered by the environment. Realise the concerns, interests and needs of the children. Being able to foresee or anticipate possible risks and dangers.	Being present. Taking into account the number of students, being more than one adult in order to attend to the children's needs. Sharing the rules and boundaries in a clear and respectful way before starting the session.
Respectful	Be a model and example of behaviour. Convey the value of the awareness of being part of the great ecosystem. Offer each child what they need, without forgetting the goals they have as a group.	Listening to and watching carefully and actively. Acting in accordance with what is expressed orally. Make use of non-violence communication.
Naturalist	Enjoy the outdoors sessions. Transmit the passion for nature.	Getting to know the environment and nature, inhabiting it and enjoying it; in order to value and appreciate it.
Sensible	Capture emotions, sensations, changes and be critical. Appreciate the beauty and essence of nature. Appreciate the cycles of nature and life.	Opening all the senses. Doing self-reflections.
Guide	Become a model that fosters attitudes of respect, curiosity, and love for nature. Offer strategies to observe and identify the different elements that are part of nature.	Being an example and applying the actions and attitudes that the adult wants to promote. Sharing advice and guidance to allow free exploration.

In this accompaniment, the adult must take into account:

To be...	In order to...	By...
Creative	Create interesting dynamics and activities with very diverse materials. Be an example in resources, ideas... taking advantage of any natural material.	Looking for resources, being observant, without limits, feeding this interest... Continuously training, reading, sharing with others...
With coherence	Be an example Behave sensibly according to the sustainability of the environment.	Reflecting carefully on one's actions. Planning in detail the proposals that will be carried out.
Sincere	Create a safe and loving bond with children. Convey confidence.	Sharing ignorance of some content without inconvenience. Showing that we can all learn together.
With confidence	Remember the importance of trusting oneself as well as the students. Impulse situations of discovery for children. Feel safe and propose situations to make students grow.	Sharing the limits very clearly with all children and ensuring their understanding. Working on the own personal aspects, self-knowledge.
Connected	Convey the value of the connection and rootedness with the territory, to feel one's own.	Going into nature in a fully conscious way.
Flexible	Adapt to the situations that arise. Set your own limits, sometimes your own fears prevent you from learning new things (for both adults and children).	Listening fully aware. Sharing rules, boundaries, and instructions clearly. Asking the children to mention the previous point, in order to ensure understanding. Conveying that there is trust towards them (children).
With listening	Detect children's needs. Knowing the children's interests and thus being able to maximise learning possibilities.	Approaching small conversation groups with respect. Giving enough time to the different proposals. Including children's voices and ideas in the planification.

*References and contributors: teachers' role.

"What does a baby need to live, grow and develop? An adult who looks at him, accompanies him, supports him, thinks about him..."

Èlia Martínez Cava



Outdoor learning does not really need any kind of material, just with a great detailed and organized plan could be enough. However, it is highly recommended that teachers complement this plan with useful materials and supplies in order to ensure a meaningful and enriching learning experiences for kids.

This guide includes three kinds of lists: teachers, students and exploration kit. These lists are suggestions and recommendations. They can variate depending on the teaching styles, lessons, purposes, needs, setting... At the same time, they include general materials but also more specific ones.

It is also very important to consider the way of keeping these materials in order to keep them dry, well organized and easily accessible when needed.

Teacher's kit

- Telephone
- First aid kit
- Comfortable backpack
- Comfortable mountain shoes
- Bottle of water
- Signal (for example: a whistle)
- Camera
- Notebook for observations, notes...
- Rubbish bags
- Colourful clothes or a specific colour
- List of name and families' telephones
- Stop signs to mark the area
- Extra food and water
- Raincoat (if necessary)
- Sunscreen (if necessary)
- Insect repellent (if necessary)

In addition to the already detailed teacher's kit, students should have a kit that complements the pedagogical activities prepared by teachers. These materials should be useful to deepen their learning process and allow new discoveries that provide them with greater connection with the outdoors.

It is really important to make students responsible for these materials, not only when using them, but also when it is time to put them back in the different bags and come back to school. It is a suggestion to make them participants of the organisation, facilitating different backpacks; this way, they feel more responsible.

Exploration kit

- Field guides (flora, fauna, footprints, clouds...)
- Pencils, crayons, rubbers, pencil sharpeners...
- Notebooks
- Mat
- Sunshades
- Printouts with the lists of the materials
- Exploring material:
 - Peeler
 - Gardening gloves
 - Insect nets
 - Child binoculars
 - Wool, stings...
 - Magnifiers, loupes... with its containers
 - Torches
 - Small containers for capturing small creatures and sharing discoveries with the classmates
 - Tweezers/tongs
 - Compass
 - Bags to collect insects, bugs, leaves...
 - Mirror

When going outdoors, it is essential that kids enjoy the experience because they will be more motivated and interested in discovering and learning. To achieve this goal, the previous kits are needed but, at the same time, students should know that their own kit it is also crucial for a great experience.

This list is a suggestion that teachers can share with students and create their own one.

Students' kit

- Notebook or Nature Journal for drawings, observations, ideas...
- Comfortable backpack
- Comfortable mountain shoes
- Weather appropriate clothing (raincoat, cap...)
- Signal (for example: a whistle)
- Healthy snack
- Bottle of water
- Sunscreen (if necessary)
- Smartphone or tablet (if necessary)
- Reflectors

**References and contributors: materials and resources



LOOK DEEP INTO NATURE AND YOU'LL UNDERSTAND EVERYTHING BETTER.

ALBERT EINSTEIN

Before going outdoors

For teachers

Foremost, it is very important that you have permission from your administrator and families. If you are in a school that goes out a lot, either to the countryside or to the area around the school, you can ask to sign a single permission form. This form can provide permission for you to take your students within a defined area for the duration of the school year.

Make sure that you are not going alone, and you share the same indispensable ideas about safety and security with the other teachers. Apart from being two teachers, you can ask for volunteers: any expert related to the topic you are going to work on, or some family volunteers might be available to come with you.

Another essential aspect is to revise the recommended equipment. It is useful if all these items are kept in a designated backpack. Apart from the equipment related to exploration and learning processes, it is essential that you revise the First aid kit in order to check that it is completed.

Visiting the outdoor area before you go with your students and checking the weather is essential for your own security and, obviously, for the safety of your students. Make sure there are not any hazardous items and that you are aware of any risky place, so you can inform students and mark it in a recognizable colour object. Share the weather with students and families, so they can wear appropriate clothes and footwear for the conditions. For example: sunscreen, water, and hats for hot and sunny weather. Apart from this, it is also of great importance to have the list of the family phones in case you need to contact them.

Last but not least, make sure you prepare and review the learning activity and the needed materials. Reviewing the inquiry-based learning approach and preparing good questions that promote investigation will allow you to make the activity an enriching experience. Remember that we, teachers, are models for students, so learn and explore alongside them.

For students

Discuss routines with students before you go outside, even if you go outdoors very often.

Make sure students are clear about what this experience will look like, and share the learning objectives of the outdoor session, so students are aware of what you expect from them.

It is also essential that you explain and revise each time the basic code of conduct, so these aspects will become a mantra from them. A very significant way to do it is with a conversation where students can express themselves which rules they imagine and the reasons.

Here are some examples:

a. We take care about oneself. This mantra is related to the comfort and well-being of oneself, meaning that: if the kid is cold, he/she needs to remember to put his/her jacket on. It is not necessary that adults remember that each time. When they are very young, the adult can make them aware of this necessity but as they grow up, they must be aware of these signs.

b. We take care about the others. This mantra means that we are a group, and we have to take care of each other, this way everybody will feel secure and will be more relaxed.

c. We take care about the environment and living beings. This mantra refers to the responsibility to take care of the place where other living beings live and how to interact with things found in nature using our senses. We cannot throw and leave the rubbish, break branches, pull up wildflowers, fruits, step on insects... Children must express gratitude for being surrounded with nature.



During outdoors activities

Apart from the previously mentioned, there are some other aspects that are necessary to communicate with your students before starting the outdoor experience, such as:

- Listen to the teacher when he or she is speaking, and the teacher has to listen to the students too.
- Make turns and respect each other when speaking, one person at a time so that everyone has a voice, and this voice can be listened by everybody.
- No hitting with sticks, rocks, it can be very dangerous.
- When looking for insects, children must wear gloves and put the insect into a magnifier container to observe and investigate.
- If a student acts inappropriately, have a conversation for dealing with this that is clearly understood.
- Have some colourful signs to mark the area, so children know that they cannot pass these signs.
- Establish a meeting point and have a code that means that everybody must come back to that point.
- Remember to students that a bathroom break before you head out may prevent the inevitable “I need to go to the bathroom” once you’ve arrived at your destination. Even that, if you spend a lot of hours outdoors, you must have a place where kids can go. It is essential to share with them that the area must be kept clean.

*** References and contributors: Security and safety



07 | METHODOLOGY

When learning outdoors, it is important that teachers reflect on the methodology that is going to base this way of teaching and learning. After different moments of reflection and observation during the project, we have arrived to the conclusion that teachers should consider the following aspects when planning learning outdoor sessions.

To start with, teachers should transmit a good relation with nature by connecting with it and using respectful language. In that way, students feel that nature is a space where they can feel secure and, therefore, learning will take place in a more natural and interested way. As we already know, children are born explorers, so it is essential that we, as teachers, let them develop even more this magical characteristic. At the same time, they will improve and enrich their sensory awareness, meaning that they will be even more connected to that natural world and processes.

Children are also curious people, and this potential should be taken as a positive aspect, meaning that teachers should plan activities and dynamics that improves their sense of curiosity and thinking strategies in order to become more competent. Good questions made by teachers are good examples and models for students, so children will be used to that way of thinking and, they will also deepen in their own learning processes. Apart, they will be able to make hypothesis and contrast them with the reality in order to get their own conclusions.





Their creativity and capacity for observation should also be taken into account, so children can use these abilities to carry out problem-solving activities. These type of activities involve students in their learning process, because they are learning by doing. At the same time, they become the centre of these learning processes. This educational point of view allows children to be more autonomous.

Connected to that aspect, teachers should be flexible in order to respect students' interests and, also, to be able to change their roles. Meaning that, children should have the opportunity to share their knowledge, observations, thoughts... to the rest of the mates and, therefore, become the experts. Apart from that, teachers should always respect students' rhythms and ways of learning, so everyone can have the same opportunities.

Moreover, when learning outdoors, each situation becomes an experience for children and for sure that these experiences have multiple curriculum connections. For example, when learning about trees, students are doing art because they can paint what they observe; science because they learn about their life cycle, leaves...; language, because they can read information or write a poem; mathematics, so they can measure... Therefore, children learn in a globalised and integrated way. It is essential that teachers reflect about this point before going outdoors and realise the amount of opportunities and learning moments that students are going to experience.

Not only teachers must reflect about their own practises, but also students should have the possibility to reflect about their own processes and learning moments, so they can realise what have they already learnt, what can they do better... Taking these reflections into account, student can always improve their learning experience.

Last but not least, all these learning experiences should be documented in the class so the interest and motivation for that moment increases. They can remember the observation and continue investigating and learning indoors.

**** References and contributors: methodology

08 | ACTIVITIES

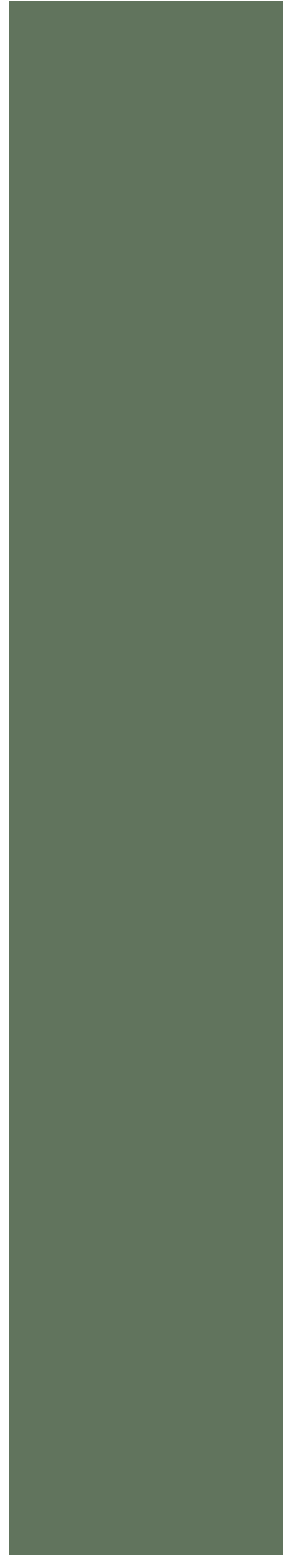
This guide includes different activities done during the project and also other activities that the five schools of the project have already implemented and done during these last school years.

To make this guide useful, the activities are classified into ages, there are four groups: from 3 to 6 years old, from 6 to 9 years old, from 9 to 12 years old and, finally, from 3 to 12 years old. This last group includes all the ages because the activities can be done in all levels, just taking into account that depending on the level, the teacher will adapt the activity.

There is a file for each activity which specifies the title, the learning areas involved, the objectives, a detailed description of the development of the activity and the materials needed. Each activity is complemented with photos in order to have a greater idea.

Learning area	Code
Mathematics	A1
Arts	A2
Science	A3
Environment	A4
Physical Education	A5
Music	A6
Language - Writing skill	A7
Language - Reading skill	A8
Culture	A9
Geography	A10
History	A11
Technology	A12
Citizenship and values	A13
Foreign Language	A14
Language - Oral skill	A15

3-6 YEARS OLD



Mandala

Learning areas

A1, A2, A4, A9

Objectives

- To develop concentration and calming down.
- To be conscious of the beauty in the nature.
- To figure out symmetry in nature.
- To develop fine motor skills.
- To co-operate and work in teams.

Description

This activity starts indoors, by drawing the plans for mandalas. When doing with planning, kids must be concentrated on the different aspects related to symmetry. Once is done, they take the drawing with them and then build them outdoors using the elements already used in the drawing. To do so, children must know the flora that they can find in their area.

This activity can be done in the other way around. First, students build the mandalas and then, they draw the pictures on their notebooks or Nature journals.

If it is possible to take pictures, then you can also work with photos by describing them and guessing which mandalas it is.

Resources (materials)

Natural materials
Paper
Crayons



Finding letters and building words

Learning areas

A5, A7, A8

Objectives

- To develop concentration and observation skills.
- To practice letter recognition and its sounds.
- To develop climbing skills.
- To co-operate and work in teams.

Description

Teachers hide letters all around, and students have to find them. Once they have the letters, in small groups, they have to create and build words. An option for the beginners is to order the letters with the numbers written behind the cards. Once they have put the letters in order, they have to try to read the word and know the meaning. Another option for experts is to create words in an autonomous way. Teachers can ask them to build words with a minimum of letters (depending on the level). To finish, they have to write the words on the paper.

Resources (materials)

Letters.
Paper.
Pencils



Human Body

Learning areas

A1, A2, A3

Objectives

- To internalize the notion of the body scheme.
- To identify the main parts of the human body inside and out.
- To assimilate the human body to a tree (head; trunk and limbs).

Description

To do this activity, first children listen to a story about the human body in the school garden. After that, children make a body outline of a child on a paper. Finally, they cut and paint the main internal organs to assemble the human body.

Resources (materials)

Paper.
Pencil and colours.
Art materials: glue, scissors...
Human story.



Feel the nature

Learning areas

A1, A3, A4

Objectives

- Raise awareness and familiarize students with the different texture of nature materials.
- To express their feelings and personal opinions.
- To stimulate different parts of the body.
- To be able to distinguish the different materials just with the touch sense.

Description

Different elements of nature with different textures are placed in different boxes, so that students can walk on them, feel the textures and be able to identify them with their eyes closed.

Resources (materials)

Boxes with different materials and textures such as: wood, water, stones, sand, leaves...



Nature colour wheel (Four seasons)

Learning areas

A2, A4, A5

Objectives

- To appreciate the tremendous variety of colour in the natural world.
- To develop patience and calm observation.
- To co-operate and work in teams.

Description

What colours can you find in nature? Since Nature provides us with so many wonderful colours, it is essential that children realize this brilliant fact. Therefore, to do so, children have to find different objects from nature that suits each colour of the wheel. If the teacher prepares this activity in each season, children can also be aware about the differences between seasons (seasonal changes).

Each time students find an objects that suits a specific colour, they can keep in a small bag or hold it in the wheel using clothe spins.

Once all the objects are found, students can write down the lists of these objects and also share the objects with the rest of the groups, so they realize the plenty of things of each colour.

This activity can also be known as *Colour Scavenger Hunt*.

This activity has many benefits for children, but one of the most important is that it inspires them to explore the outdoors and observe things that they normally would not notice.

Resources (materials)

Seasonal colour wheels.
Clothespins.



Geometric shapes hunt

Learning areas

A1, A5

Objectives

- To observe geometric shapes in our daily life, recognize them, name them.

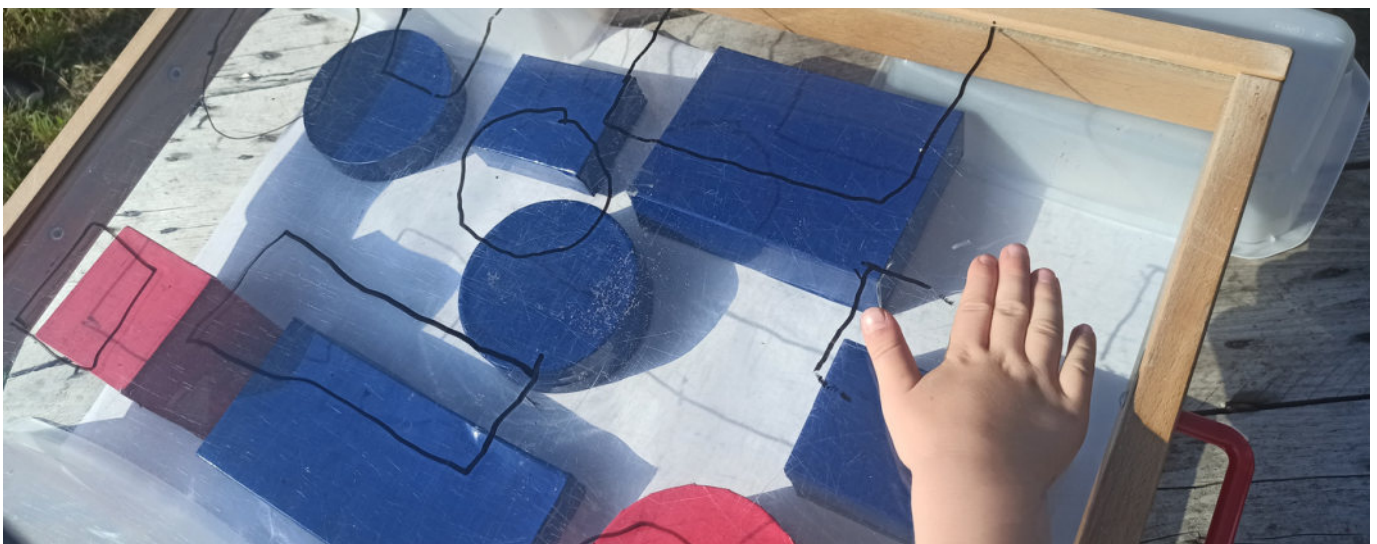
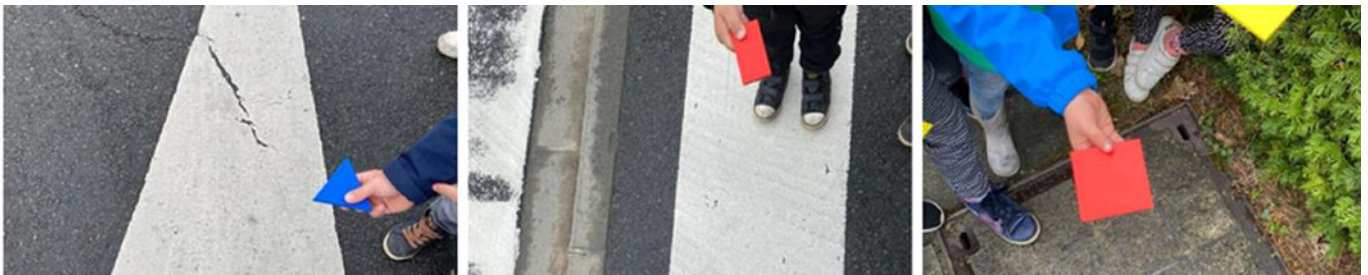
Description

During a walk around our school, children are encouraged to observe and describe the surroundings, focusing on one of the mathematical contents worked. Using various materials, children name or indicate the geometric shapes encountered on the way. At the same time, they can take pictures of these finds, so the activity can continue indoors by sticking the photos on the notebooks and writing the names of the different geometrical shapes.

Before doing this opened and outdoor activity, it is essential that students have already worked on that content.

Resources (materials)

Geometric shapes.
Camera.
Notebooks, pencils scissors and glue.



Vegetable garden: Observing biodiversity in a restricted area

Learning areas

A1, A3, A4, A13

Objectives

- To observe the biodiversity in a restricted area with a quadrat.
- To use a magnifying glass in order to observe small elements in nature.
- To draw information observed.
- To choose the right place where to put the different elements.
- To be aware of the life cycle and the seasons.

Description

Children enjoy and at the same time learn different aspects about the vegetal and animal world. They observe the interaction between the vegetal and animal world and draw conclusions about life conditions. These drawings are more than once, different moments of the year, so they can keep a track of their work and get some conclusions which are going to be shared with the whole group.

These observations are done by using their own eyes, but also using magnifying glasses, so they can realise the differences between one way and the other.

Different aspects that students can be aware by interacting in this area are:

- Distinguish the plants (shapes, colours, known elements, unknown elements, flourished, buds, etc).
- Distinguish the animal world from the plant world.
- Distinguish the insects from the arachnids.
- Observe the cycle of a ladybug (difference between the larva and the adult beetle).
- Observe the different steps of the cycle of the seasons but also the growth of a plant and the life in the animal world.

Resources (materials)

Nature exploration kit.



Vegetable garden: Transplanting leeks

Learning areas

A1, A3, A4, A13

Objectives

- To transplant leeks with a string and by following detailed instructions, respecting measurements.
- To work in staggered rows.
- To use the standard (square on a peak) at the beginning to the end.
- To estimate the half of the standard and alternate the report of the measure.
- To follow the direction of the string (parallelism).

Description

This is a biodegradable process to transplant the leeks. This process starts indoor, so the teacher explains the process to the kids, and they start practising with measurements. Once they are familiarised with the measurements, they prepare the cardboard that they will have to use outdoors, in the vegetable garden.

The following steps are:

- Prepare a cardboard box in the transplanting process in staggered rows, using colours and measurements.
- Drill holes in a cardboard in order to transplant leeks at the right place (respecting the measurements)

It is recommended to use the cardboard box because it retains water and prevent dryness (such as the straw) at the same time that it is biodegradable.

Resources (materials)

Cardboard.
Strings.
Colours.
Leek.
Straw.



Vegetable garden: Sorting seeds

Learning areas

A1, A3, A7, A8, A15

Objectives

- To sort seeds in order to put them in a box and prepare the seedling process.
- To know and distinguish the seeds by looking up at the reference document.
- To make a book with vegetables and seeds from the vegetable garden.
- To create a seed library so that we can discuss it with the parents and other partners in this project.

Description

This activity should be done in two sessions, so students can internalize better their own learning process. To start with, students observe a reference document which specifies the name and the picture of five seeds. These seeds are the ones that they can find cultivated in the vegetable garden.

Using this document, students can do different activities such as: place the real seed on each picture, search for the information and eliminate intruders (look, shape, colour), sort the seeds and put them in an egg carton using pliers, use the magnifying glass to observe better each seed, fill the worksheet, gather together the same seeds in order to prepare the seedling and the seed bank...

The following session, students can: prepare their own reference document and write the name of the seeds apart from drawing them.

Finally, it is important that they have a moment to discuss, argue and exchange information and opinions.

Resources (materials)

Reference document.
Pencils.
Pliers and magnifying glasses.
Seeds.



Vegetable garden: the model

Learning areas

A1, A10, A15

Objectives

- To make the model of the vegetable garden in the sandbox.
- To make hypothesis and compare them with the reality.

Description

Students have a specific area in the vegetable garden where they have to represent the whole garden using miniatures pieces that represent the real ones.

Students can move around the vegetable garden in order to get familiarised with the organisation and then, be able to represent it in this area.

During this mathematical activity, students, in a group, will be able to understand the different perspectives of one place, to use the correct representations, heights, use of colours... They will have to use their own strategies in order to complete the task.

They will not only have the existent elements but also others that are not in the reality, so they will have to dismiss the ones that do not exist.

Once done, they will have to be able to describe it using mathematical concepts of location. It is very important that the teachers leaves them the space and time to do it and to let it work, so they can discuss with each other, touch, correct, justify and to exchange opinions.

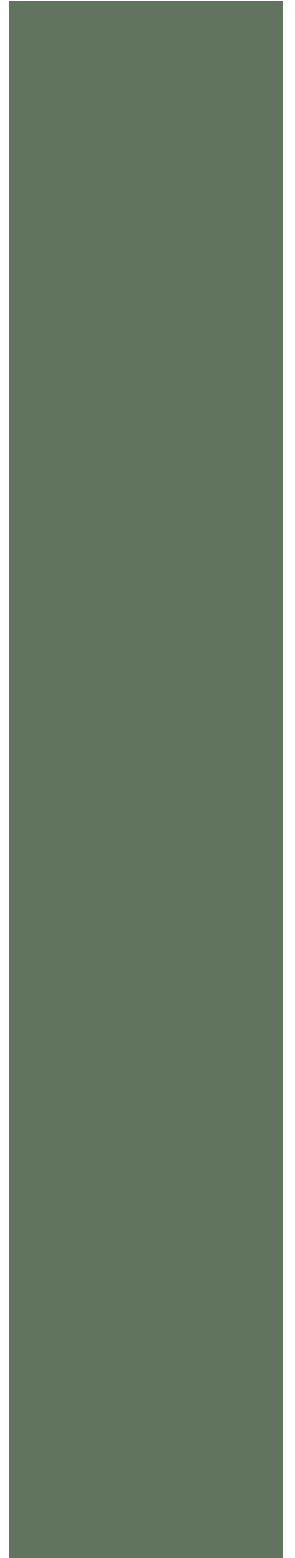
When the teacher supervises and sees some objects placed in the wrong way, it is essential that he/she does not give the solution immediately but give students the opportunity to observe again the reality and compare in order to find the mistake.

Resources (materials)

Miniature objects.



6-9 YEARS OLD



Spring is here!

Learning areas

A3, A4, A5, A8

Objectives

- Introduce students to wildflowers.
- Become aware of the flora's differences according to the season.
- Identify the wildflower plant observed by common and scientific name.
- Enjoy multisensory experience in a meaningful context.
- Develop their sense of responsibility.

Description

When Spring arrives, all the countryside starts to blossom with many kinds of flowers, plants, and trees. Children should have the capacity to recognise the different kinds of flowers, plants, and trees that surround us.

In this activity, children are learning about wildflowers, because they are these kinds of magical presents that excite kids.

Children are going outdoors to discover and recollect wildflowers across the foothills and up the mountains near the school. It is important to start with basic observation in order to capture children's curiosity, for example: colour, shape, number of petals... and depending on their curiosity, you can go deeper on the observations and thoughts (reflections).

They will have to recollect them and put them in their cardboard. Before doing so, the teacher should have shared with kids the essential rule about it: one flower is for nature, the other one is for the animals that live in the forest and the third is for us (so they can pick one of them). Explain the importance of ecosystems. It is not necessary to recollect them, so teachers and children can take pictures of the flowers for the following research.

It is significant that even though you are going to look for deeper information at school, that you have some guides with you that inspire them to find the different kinds of wildflowers. Children love to identify them on the spot, and to point them out and name them as they see them again on their path.

Once finished, children can find out the name of the flower by looking carefully at the flowers or photos (shape, colour, type of leaves...). This activity can conclude by using their observations and research to create their own wildflower guide which can be shared with other classes, families and community.

Extra activities: making connections → include extra questions that allow your kids to develop a sense of curiosity (what do plants need to grow, why are they living... After all this research, you can play the game: “I spy...” or “Scavenger hunt” which consists in finding the kind of flowers already learned during the path.

**Resources
(materials)**

Cardboard
Flower and plants' guide
Scissors
Paper
Pen and felt-tip pen.
Camera / smartphone
Computer, laptop... with Internet connection



Bird feeders

Learning areas

A3, A4, A13

Objectives

- To identify that animals need the right types and amount of nutrition.
- To be aware of the difficulties some animals have in winter.
- To construct bird feeders with awareness of bird behaviours and necessities.
- To develop the sense of responsibility.

Description

When Winter comes and the weather gets cold, there are some animals that have problems finding food on their own.

This activity starts by showing our students some news, where it is explained that some birds are dying because they can not find enough food due to the cold weather.

After that, it is important to discuss with students how can we help them, so everybody gives their opinion about the issue. The teacher is the responsible person to guide the students to the idea of building feeders to help the birds.

Once decided, it is essential to collect information about the specific bird's needs and behaviours. We can have this information from YouTube videos or other online websites well-chosen. This information must be analysed and discussed by the whole group. Then, in smaller groups, the students design the feeder they want to build and write down the material they require and the steps they should follow to build it.

After that, in the outside session, with the materials, they make the feeders and hang them in the trees. Later, they have some time to observe in silent and to make hypotheses about what will happen with the feeders and what they will find when they come back to the place.

They test their hypothesis in the next session outside.

**Resources
(materials)**

Oranges
Peanut butter
Bird food
Sticks
Wool
Computer with Internet connection.
News from newspapers, internet...



Build a bird feeder



1. Cut.

cut the orange in half and take out all the fruit. We only need the peel.



2. Cross.

Pick a stick and cross the orange.



3. Tie.

Tie a piece of string in the extremities of the orange.



4. Fill.

Fill the orange with seeds.



5. Hang.

Hang the feeder on a tree.



The forest of the 5 senses

Learning areas

A4, A5, A7, A13, A15

Objectives

- To discover the forest through the 5 senses
- To follow a course with a rope while blindfolded.
- To create a perfume from elements of the forest.
- To taste the sap and a leaf.
- To observe the tree tops with a mirror.
- To listen to and distinguish the different sounds of the forest and hypothesize on their origin.

Description

This activity is focused on the senses and what each sense brings to us.

Regarding hearing - Each child chooses a tree and sits at the base of it during a specific amount of minutes (depending on the group necessities). During this time, children listen carefully to the different sounds of the forest. When the time is up, they hypothesize where the sounds are coming from and compare what they did or did not hear depending on where they were. An interesting conversation can be done afterwards, so children can be conscious on how the human activity affects and disturb nature.

Regarding smell - each child decides a spruce cone and must add one or more elements of the forest (sap, leaves, mushrooms, flowers...) in order to create a perfume. The children compare the results obtained.

Regarding taste - Children observe the sap flowing from trees. They taste it and describe it using terms related to taste (bitter, acid...). Then, the teacher chooses edible leaves and asks the children to taste them. They compare with the taste of the sap. It is important that teachers ask, before the activity, about the edible elements in the forest and about the children's allergies.

Regarding touch - Creation of an itinerary with a rope between trees using natural obstacles of the forest. Think of turning around the trees, lowering or lowering the level of the rope... The students start the itinerary blindfolded with one hand on the rope and move along it, paying attention to the obstacles on the ground, using their hands to avoid hitting a tree and to follow the rope. They sometimes have to change hands holding the rope depending on the obstacles they encounter.

Regarding sight - The children are in pairs: one student directs and gives instructions, and one holds the mirror at nose level and parallel to the ground to see the tops of the trees.

The main goal of this activity is that children experiment and feel the forest in different visions that they are not used to.

It is really important and interesting to finish this sessions by sharing their feelings, sensations, and opinions. Apart from this oral activity, children can write that they have listened, observed, felt...

**Resources
(materials)**

Rope.
Several headbands.
Several small mirrors.



Orientation: search and find

Learning areas

A1, A5, A10, A13

Objectives

- To find your way from a map,
- To find his/her way using a compass,
- To find a real object from a photo in the centre,
- To know how to read a caption of a picture.

Description

The children are in groups of 2 and must find as many objects as possible from a photo. This photo reflects the reality, they have to orientate by using this photo and the compass. Children locate the map in the right direction with the compass and find numbered markers in groups of 2.

Time limit, at the end we see which team has the most markers.



Discover the light, the shadow and the symmetry

Learning areas

A1, A2, A3

Objectives

- To discover the basic characteristics of the light and the shadow (size, position, orientation).
- To play with symmetry.
- To cooperate and build symmetrical projects.
- To make visual creations with shadows.
- To learn through observation.

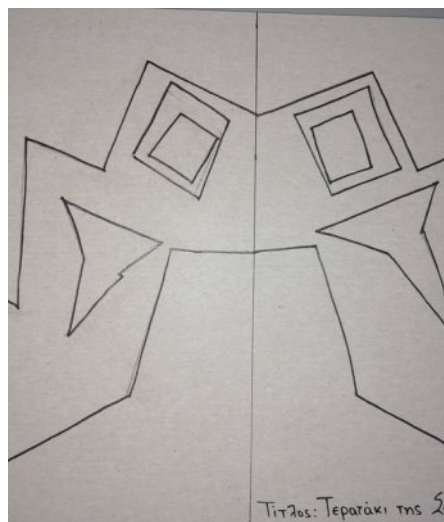
Description

To start with, students should observe the sun, which is a source of light for planet earth. Then, students can start to familiarise with the shadow by measuring the shadow of various objects and the length of the day and drawing them on paper. The children observed how the shadow grew larger and how its direction changed., it is essential to share opinions and thoughts. This is how the following idea was born: some children posed in whatever position they liked, and the rest of the children drew the outline of their shadow. As a result, a children's dance performance was created, which they coloured and decorated at school.

The experiential activity was completed with exercises on symmetry. Children worked in pairs. One student drew on one side of the paper and the other student had to copy on the other side of the paper, what they saw, as if it were a mirror. At the end, they gave titles to their works.

Resources (materials)

Papers.
Rulers.
Markers, crayons.
Sunny day.



Why do leaves change colour in Autumn?

Learning areas

A3, A4, A7, A8

Objectives

- To be aware of the changes that some trees experience in Autumn.
- To get information about leaves and construct the idea together.
- To be aware of the importance of the leaves in trees.
- To know the different kinds of trees, depending on their leaves' characteristics and their way of feeding themselves.

Description

When Autumn comes, some trees start to change their leaves' colours. When you go outdoors weekly, you can be aware of this change and ask children interesting questions in order to catch their interest. It is important to have a first conversation in order to know their previous knowledge and after that, it is time to look for the real information and then compare them.

It is essential to bring visual books with some written parts (appropriate to their age) and take notes of what they find. This part can be done in cooperative groups: each group has one book and after having looked at them, we come back together to share the information in order to construct a common idea. A fascinating book for the teacher is: Can you hear the trees talking? (Peter Wohlleben). It can be used to read specific questions to children because it is very appealing, and it is written for children, so it is easy to understand.

The idea is to establish a debate based on these ideas and little by little approach the concept of "photosynthesis" and the importance of leaves and photosynthetic pigments play in this process.

Once children have the information, it is time to do an experiment related to the pigments.

Children collect different leaves from nature: colours, sizes and types of leaves. After, at school, a microscope can be added to observe the leaves. Concepts such as: parts of the leaves, types of leaves (simple or composed)... A classification activity can be done taking into account different characteristics.

Going back to the first question: why do leaves change colour in Autumn? it is time to propose to the group to carry out a small experiment to visualize the different photosynthetic pigments contained in the leaves. This experiment is known as: chromatography. The steps for the experiments are:

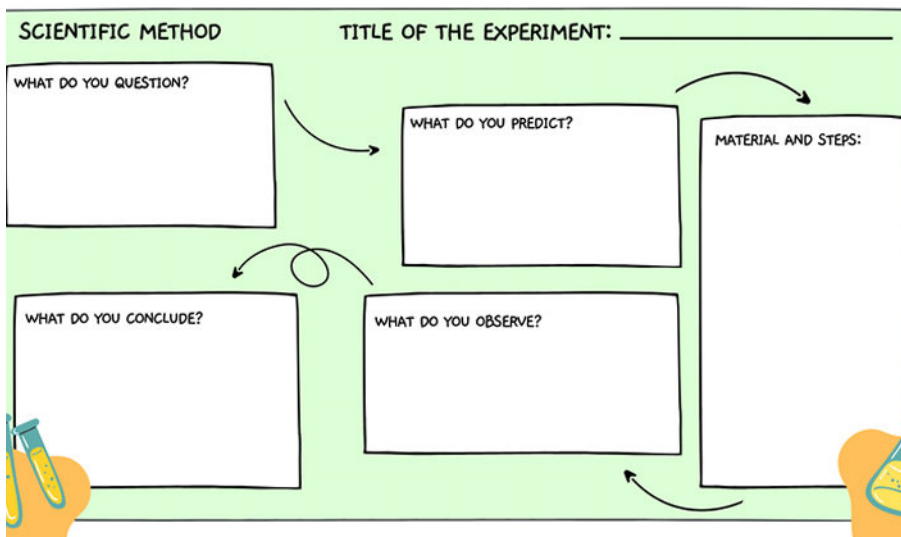
The first step is to classify the leaves depending on their colour.
 The second step is to cut the leaves in small pieces, put them into the glass jar and add alcohol in it.
 The third step is to press the leaves in order to get the pigment.
 The fourth step is to put the filter paper vertically inside the jar and wait some hours to see the result.

Once the experiment is done, it is essential to have a discussion with interesting questions in order to make students express their conclusions. Different questions such as: *What can be observed doing this experiment?*, *Why is chlorophyll important?*, *Why do leaves fall? Why do they change colour?*, etc.

Finally, it is important that children fulfil a worksheet related to the scientific method.

**Resources
(materials)**

- Leaves.
 Books and videos about trees.
 Information to know the leaves' classification.
- Experiment:
- different colours of leaves
 - scissors
 - glass jar
 - kitchen paper or filter paper
 - alcohol



Oh! Asparagus!

Learning areas

A1, A3, A7, A8, A9

Objectives

- To introduce students to wild and nutritional plants.
- To become aware of differences in flora and fruits according to the season of the year.
- To identify the wild plant observed with the common name.
- To enjoy multisensory experience in a meaningful context.

Description

Between the end of January and March, if the external conditions allow it (humidity and temperature), it is typical in the South of Catalonia to find wild asparagus plants full of asparagus. When going outdoors, children observe the plants, with their pointed leaves and also their fruit when they already have them.

If there are asparagus, children can collect them. It is important to explain to the children that only the big ones must be collected, leaving the small ones so that other people can collect them in a few days. Once at school, asparagus have to be with water until they are going to be used, so they keep fresh.

The following step is to prepare them to be cooked so, children cut the asparagus in small pieces, avoiding the hard part, using their hands and fingers (fine motor skills). At this moment, teacher must help them to realize about the texture, smell... Once cut, it is time to scald them with boiling water to remove some bitterness. One way to cook them is with eggs, making an omelette or asparagus scramble. Therefore, asparagus must be mixed with beaten egg and salt to make an omelette or the scramble. If the children are used to it, you can put garlic or dried garlic in the omelette, to add extra flavour. Put the mixture in a pan with oil and make the omelette or scramble. Once it is done, each child can eat a piece of omelette with a toast of bread. Apart from omelette and scramble, you can also prepare an asparagus cream.

Afterwards you can work on the recipe, as well as make a small herbarium with the characteristics of the plant and the fruit.

**Resources
(materials)**

Flower and plants' guide
Scissors
Eggs
Salt
Olive oil
Basic kitchen utensils: frying pan, forks...
Paper and pencils



Read and choose

Learning areas

A5, A8, A13

Objectives

- To read and comprehend the text.
- To work together as a team.
- To practice accurate reading

Description

Firstly, students read the text carefully, they can do it individually, in pairs or small groups. Once they are ready, and they have understood the text, teachers gives them some sentences related to the text. Some sentences are true and some of them are false, therefore, they have to read them carefully and take them to the right plastic bag (true or false). The bags can be placed further away, depending on the movements of the kids (walking, hopping, running...). Once everybody has finished, the sentences are read aloud to check if everyone agrees.

Resources (materials)

- A text to read (teacher chooses the text and the sentences according to the reading skills of the students).
- Sentences of the text, some of them true and some of them false.
- Two plastic bags with the words: "true" and "false"



Vocabulary activity

Learning areas

A5, A7, A9, A14

Objectives

- To learn new words in different languages.
- To be patient when learning new words and how to pronounce them.
- To develop memory skill.

Description

There are pictures of different things around the forest/yard. Kids go to the pictures and try to remember them in the language they are learning.

If you happen to have international guests in your school, this is a great way to get to work with the kids. In that case, you can teach them your language and visitors can teach theirs.

Once all the pictures are done, you can make a circle and share their new learnings so they can practice their memory skill. With older kids, you can add writing, too. It is an activity that can be done mixing ages, so they can help each other.

Resources (materials)

- Pictures (laminated or in plastic pockets).
- Paper.
- Pencils and crayons.



Maths outdoors

Learning areas

A1, A5

Objectives

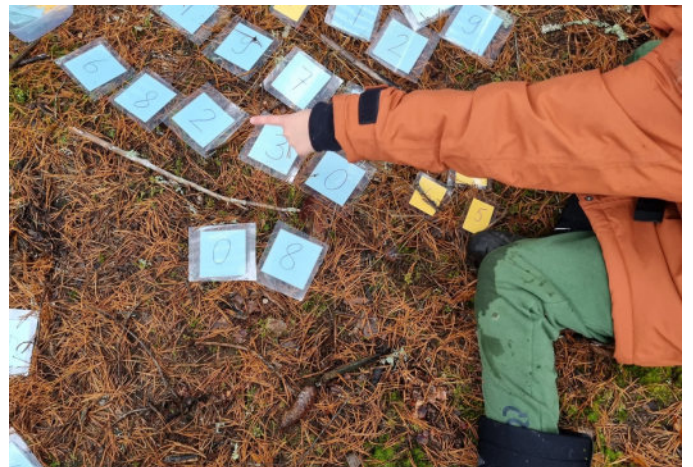
- To practice any calculation (adding, subtraction, multiplication, division).
- To solve maths problems by using partly natural materials in counting and marking.

Description

Mathematics can be done indoors or outdoors, but one of the benefits about learning outdoors is that kids' the level of concentration increases. They are more relaxed and focalized in the activity. Therefore, this is a basic activity that only needs laminated number cards and nature material to solve either operations or problems.

Resources (materials)

- Lots of laminated number cards.
- Nature materials: sticks, leaves, rocks, pine cones...



Wall with Life

Learning areas

A2, A4, 19, A10

Objectives

- To underline the importance of preserving/recovering ecosystems.
- To work on artistic expression, exploring the creative potential of children.

Description

Before going outdoors, children have to do research about the terrestrial biodiversity of Madeira Island in their own classes using books or laptops with Internet connection. After this research, it is important to share their results and decide the most important elements that define the environment. Then, it is time to let their imagination fly and create an illustration about Madeira terrestrial Biodiversity (Fauna and Flora). Finally, with some teacher's help, the drawing is passed to the wall and the children paint it with different colours.

Resources (materials)

- Books about Flora and Fauna.
- Laptops or computers with Internet connection.
- Paper, paints, brushes, sponge, template...



Geolab

Learning areas

A3, A4, A7, A8

Objectives

- To reinforce knowledge of the geology of the archipelago of Madeira in schools.
- To complement the content taught in educational institutions;
- To make students and teachers aware of learning local geology, through a more contextualized component in practice.

Description

Contact with experts it is essential to increase the knowledge of our students. Schools must use the resources of their own city or country to develop the connection with our surroundings. The mobile laboratory presents a set of practical activities that enable students to formulate problems-questions, make predictions and draw conclusions about local geology.

Resources (materials)

- Different types of rocks.
- Hammer.
- Paper.
- Pencil.
- Water.
- Alcohol.
- Dropper.
- Volcanic ash.



Outdoor writing

Learning areas

A2, A4, A7

Objectives

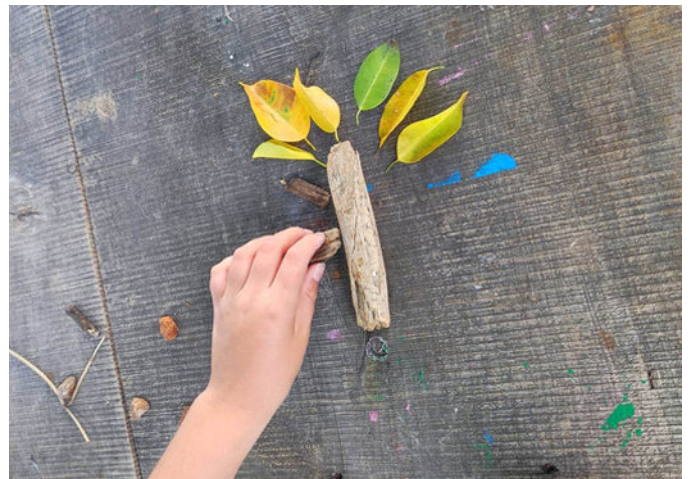
- To develop imagination and creativity.
- To increase students' vocabulary.
- To stimulate the team work.

Description

After having worked a specific text typology, students go to the school garden and pick up a variety of nature objects. With those objects, they have to imagine and write a story following the characteristics of the text typology worked. Once done, students read out loud in order to share the fantastic creations.

Resources (materials)

Paper
Pencil and rubber
Nature objects (leaves, sticks, stones, flowers, pine cones...)



Hit the target

Learning areas

A1, A2, A4

Objectives

- To improve students' attention and concentration.
- To improve motor coordination.
- To develop students' notion of distance.

Description

The children build the cans and decorate them using recycled materials such as bottles of water. After that, these cans are hung in an outdoor place such as the garden of the school. Once are collocated, there are multiple options to play and enjoy with them. One idea is that each child has 5 opportunities to hit the can with a ball, trying to hit the can the most times that he or she can. The child who gets it right the most number of times wins. Once finished the game, the winner shares the strategy used to hit the ball, so everybody can learn and improve their own skill.

Resources (materials)

Water bottles
White glue
Colour paper
Rope



Bees (from the flower to the apple tree)

Learning areas	A3, A4, A13
Objectives	<ul style="list-style-type: none"> • To discover the usefulness of bees and their life cycle. • To understand the life of the hive and the different roles of the bee during its life. • To discover how bees make honey. • To discover what a beekeeper is and to know the vocabulary used. • To taste and differentiate honey according to the seasons.
Description	
<p>To do this activity, it is essential to contact with an expert, either a beekeeper or a centre with hives to observe on site.</p> <p>The main task is the Observation and discovery of a hive and the work of bees.</p> <p>The beekeeper or the expert explains his or her work and provides the vocabulary related to it. He/she shows the students how the bees make the hive (hexagonal cells...) as well as the different roles they have during their life.</p> <p>If the beekeeper has been able to recover dead bees, it is possible to observe them with the microscope in order to be able to reproduce a precise diagram of the bee.</p> <p>The lesson depends on the resource person and the materials available.</p>	
Resources (materials)	<p>Beekeeper's equipment.</p> <p>Types of honey.</p> <p>List of vocabulary.</p>



Leaves recognition

Learning areas

A1, A3

Objectives

- To be aware of the different shapes of the trees of the area.
- To recognise the different leaves and relate them to their correct name.

Description

The teacher prepares different resources that allow children to recognise the different types of leaves in the forest.

Once they already know how to use these resources, the activity can be done in two different ways.

One way is that children collect leaves from the ground, they put them into a bag and, using the support, they try to classify the leaf and find the name of the tree where the leaf belongs.

The other way is by using a wheel that tells the children the type of leaf they have to find, and once it is found, they look for the name of the tree.

Students can keep the leaves and stick on their nature journal, so they can write the name of the tree and the leaves' characteristics.

Resources (materials)

Printed resources related to leaves recognition.



The 7 historical spots of Heraklion

Learning areas

A9, A10, A13

Objectives

- To learn about the Historical meaning of the monuments of their hometown.
- To learn how to explore and find the information about a place.
- To obtain a new attitude towards historical monuments of their town.

Description

The activity starts at the Historical Museum of Heraklion, where students saw the Heraklion city at a mock-up. A discussion about the 7 places observed took place and then, the visit started.

To finish this activity, a theatrical game followed with the help of the museum educator was made in order to revise all the contents shared.

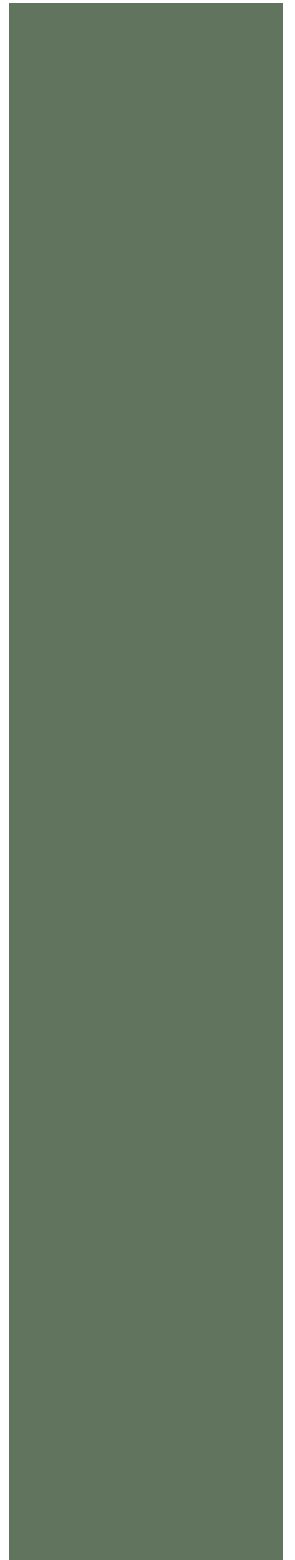
Once, indoor, in the class, teacher reflected with students using questions such as: one thing that you know now that you did not know before, what surprised you the most, what would you like to know more about...

Resources (materials)

Museum resources.



9-12 YEARS OLD



Agriculture around us

Learning areas

A3, A4, A7, A8

Objectives

- Become aware of the effect of humans throughout the years in our surroundings regarding nature.
- To raise awareness about our ecological footprints.
- To develop an appreciation and respect for nature.
- Identify the different types of trees planted and the purpose of their plantation.

Description

Living in an area where many of our past relatives used to work and live from the products the land produced allows this kind of activity.

By doing this activity, students realize what are the most common trees and why they were planted for.

Before going outdoors, there is a previous indoor activity. In groups, students think of all the trees they are used to seeing around the area, and what fruit they produce, or why they were useful for.

After this previous one, it is time to go outdoors. Therefore, once they have a list of their hypotheses about the trees they will find out, we hike around the nearest hill where the land has been worked for many years, and some of it still is. They try to spot the type of trees they wrote on their list, and add the ones they see now that they hadn't thought about. They take pictures of the tree itself, the leaves, and any other detail they might find relevant.

Furthermore, they also count how many plots have the same trees, how many trees, the distance between trees... (Among students, they help each other recognise the different kind of trees).

The activity continues indoors. It is time to share all the investigations in a general group conversation. And if necessary, we make new hypotheses about the importance of these types of agricultures in the past compared to nowadays.

In groups of 4 students, they become specialists on one of the trees. By doing research on the internet and books, they fill in a fact card with all the information about their tree, becoming specialists on it.

Once they have completed the task, they prepare a poster with the main information and details. They can use an online resource to create the poster, such as Canva, or do it by hand using any material they need.

Once they finish they will present it, as experts, in front of their classmates, and expect them to provide feedback.

HOW TO PROVIDE FEEDBACK

Thanks for your presentation.	In my opinion your presentation was ...	great excellent good interesting original	because...	I learnt that is/ has... I had a good time I didn't know... You were relaxed The explanation was very clear.
My suggestion for next time is...				
My doubt / my question is...				

Resources (materials)

Collecting data and observation
 Notebook
 Camera
 Computers, laptops... with internet connection



What are stone walls for? How are they built?

Learning areas	A3, A4, A7, A8
Objectives	<ul style="list-style-type: none">• To activate previous knowledge regarding stone walls and their constructions.• To talk and share hypotheses around this topic.• To check the hypothesis by observing in the natural environment.• To encourage students to debate and reflect upon the topic by using cooperative techniques.
Description	
<p>This activity should be done in two sessions, one indoor and the other, outdoors. In this first session, students observe images of different stone wall constructions. In pairs, they answer some questions to boost students' previous knowledge and hypothesis formulation. The session finishes by sharing the ideas with the whole group, respecting everyone's opinion, and promoting an active listening.</p> <p>The following session is outdoors. Before going out, it is essential to share and revise the last session's ideas and hypotheses, and explain the goals of this second session.</p> <p>Students are organized in cooperative teams, and they have to observe different stone walls called in Catalan: <i>marges de pedra seca</i>, following some observation steps, such as: type of stone used, the measure of each stone, how are they held together, the height and width of the wall...</p> <p>Once they have finished the observation and written down the answers, it is time to share with the rest of the class and compare with our previous ideas and hypotheses in order to get some conclusions.</p>	
Resources (materials)	Presentation with some pictures of stone walls. Worksheets with questions to reflect. Measuring tools (rulers, measuring tape...)



The Solar System

Type of activity

A2, A3, A4

Objectives

- To learn about the Solar System and be able to describe it.
- To recognise the name of the planets of the Solar System and their relative position.

Description

The main objective of this activity is to build the Solar System. To do so, children will use nature materials from the ground. Once they have found the elements, they have to build the Solar System and take a photo of it. The next step is to send the picture to the teacher. This picture will be printed and stuck on their notebook, so they can continue working in the classroom.

Before doing this activity outdoors, it is important to work on the Solar System so students can be aware of the sizes of the different planets and compare them to familiar items. For example:

- peppers: Mercury, Mars
- dice: Earth, Venus
- small potato: Uranus, Neptune
- size of two fists: Saturn
- honey melon: Jupiter

It is significant that the teacher guides the process, so students know the steps, and they can be more autonomous. They can also use a model to check their steps.

**Resources
(materials)**

Nature materials such as rocks, pine cones... or balls.
Printed picture of the Solar System.
Notebooks.
Scissors and glue.
Markers.



“Little Greenhouse”

Type of activity

A2, A3, A4

Objectives

- To collect information about a subject and put them in categories from the most important to the least ones.
- To connect theory with practice.
- To learn about the growth of the plants.
- To acquire the skills of creating a little greenhouse by their own hands.
- To gain a different attitude towards the greenhouse effect.

Description

To do this activity, teacher should start by dividing the group into small groups and then watch a video depicting the subject of the greenhouse effect. Afterwards, another video about the greenhouse is watched, in order to make the connection between the greenhouse and the greenhouse effect. Consequently, every group was left alone to discuss, imagine and then design their own greenhouse. Then all the groups put all their designs together, making a big collage of all. Afterwards, they decided which was the best design to make. Then they collect the appropriate materials and stuff to make this design a real little greenhouse. It is important to leave time in order to achieve the results expected.

**Resources
(materials)**

Solid.
Styrofoam.
Plastic bottles.
Plastic meshwork
Cable.
Seeds and plants.



The stream

Type of activity

A3, A4, A13

Objectives

- To know stream-related vocabulary (upstream, downstream, source...).
- To determine the water quality using a determination key through observations.
- To discover the life cycle of insects through a story.

Description

First activity

In groups of 4, discovery of the vocabulary associated with the definitions. Each term has to be put to the right place on the diagram representing the hydrographic map.

Second activity

A story about insects inhabiting the stream in order to discover the life cycle (more precisely of a dragonfly). Once explained, students can observe the tadpoles and insects from the stream.

Third activity

In order to determinate the quality of the water in the stream, the pupils observe the animals and then use a determination key that will guide them to know the quality of the water.

Fourth activity

In groups of three, the pupils create a fish using natural elements according to their personal representation. Afterwards, they refined their work by observing a diagram of the fish (skeleton, fins, ...).

Resources (materials)

Experts.
Resources related to the quality of water and the cycle of insects.



Orientation

Type of activity

A1, A5, A10, A13, A15

Objectives

- To encourage students to debate and reflect upon the topic by using cooperative techniques.
- To practice orienteering by using a compass.
- To be aware and improve our sense of direction.

Description

To do this activity outdoors, it is essential that students have previously worked on some aspects: the cardinal points, how a compass works and how to use it.

For the outdoors sessions, the teacher can also ask some experts to come and make the session even more interesting, such as rural agents.

In the first session, students work in a cooperative group. Each cooperative group has a route to follow on a worksheet. They must locate themselves on the first stand, and from there they must use the compass and count the steps to get to the next place. Once there, they must answer a few questions before they move to the following stand until the end. If they have some extra time, they can add another place to the route.

Once everybody finishes, it is important to share their opinion about using the compass, working as a cooperative team... and any other important aspect that they want to share.

This second session is also done in cooperative groups, each group creates a route and once finished, they will swap with another group. They decide where to go, count the steps, check the compass for the degrees according to North, South, East or West, and ask a few questions on each stop. If extra time, they can swap with more than one group.

The session is closed by sharing and providing feedback to the classmates.

Resources (materials)

Worksheets
Compass



Sponsor a tree

Learning areas

A1, A5, A10, A13, A15

Objectives

- To observe the characteristics of the tree: leaves, trunk, flowers, fruits...
- To develop attitudes of care and respect towards nature.
- To analyse the changes of the tree and relate them to the seasons.

Description

First, the children look for a place where they can listen individually, in silence, to what they feel when they listen to nature: smells, sounds, touch... Share in a large group.

We have a large group conversation about the meaning of sponsorship and what they will have to do as sponsors of a tree. Then, in cooperative groups, they choose a tree from the nearby area to sponsor.

Once the tree has been decided, they have to write what emotions it arouses in them, notice what it looks like, explain what they can do to take care of it... The emotions can be hung on small cards. It is also important to take photos of the tree each time they visit the tree.

Throughout the school year, we will visit our tree again, and we will record the changes and take pictures.

At the end of the course, each cooperative group presents the evolution and changes of their tree and will explain how they have taken care of it.

Resources (materials)

Worksheet with questions to fulfil.
Notebooks to write and note the changes.
Camera.
Computers.



Visit to a pottery workshop

Learning areas

A2, A9, A11

Objectives

- To acquaintance of students with the art of pottery.
- To be used to the use of clay as a material and create personal objects.
- To cooperate between students.
- To study the history of pottery.

Description

This activity is done indoors and outdoors, because to start with, children in their History class learn about the Minoan culture and its art. Minoan pottery is an important part of the cultural heritage of the civilization that flourished on the island of Crete about 1,500 years ago. The art of pottery is kept alive by the island's modern potters.

On the occasion of the History lesson we decided to visit one of the potteries in our area which is located in Anopolis of Heraklion.

The people in charge of the pottery welcome with an informative video about the history of their art. Then students can explore ready-made clay objects such as vases and figurines. All students then had the opportunity to create their own items, mainly plates and bowls, using the pottery wheel and the help of the staff.

After they made them, they baked them in the special oven and after a few days they sent them to our school, where we distributed them to the children.

In the following days we made objects related to the Minoan culture in our classroom, such as statuettes, ships, the disk of Phaistos and the horns of the bull.

**Resources
(materials)**

Clay.
Chopsticks.
Colours
Pottery tools



Blooming the school

Learning areas

A4, A5, A13

Objectives

- To cooperate between students.
- To learn the process of planting flowers.
- To discover the photosynthetic process.

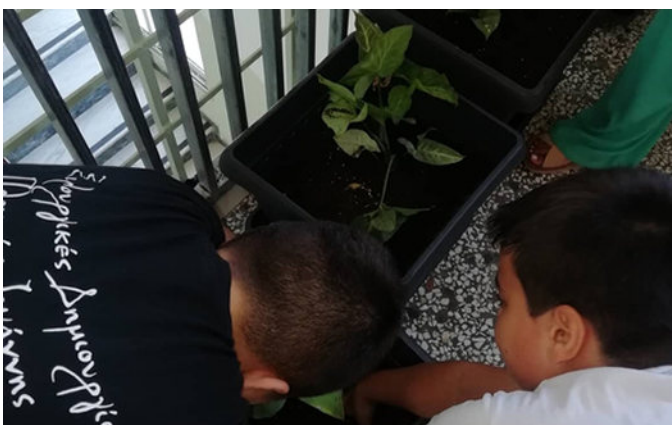
Description

Students took the responsibility to beautify the school by planting flowers. The process was completed in three teaching hours. The school collaborated with the Municipality's agencies.

Students had the opportunity to learn about the flora of their country and the necessities to take care of them.

**Resources
(materials)**

Flowers
Herbs
Container for plants
Soil
Feeds soil
Planting guiding
Water



Healthy diet

Learning areas

A3, A4, A5, A7, A10, A12, A15

Objectives

- To introduce the children to what a healthy breakfast means.
- To include traditional local products and natural foods in their diet
- To recognize their nutritional value and to change their eating habits
- To experience the joy of sharing food.

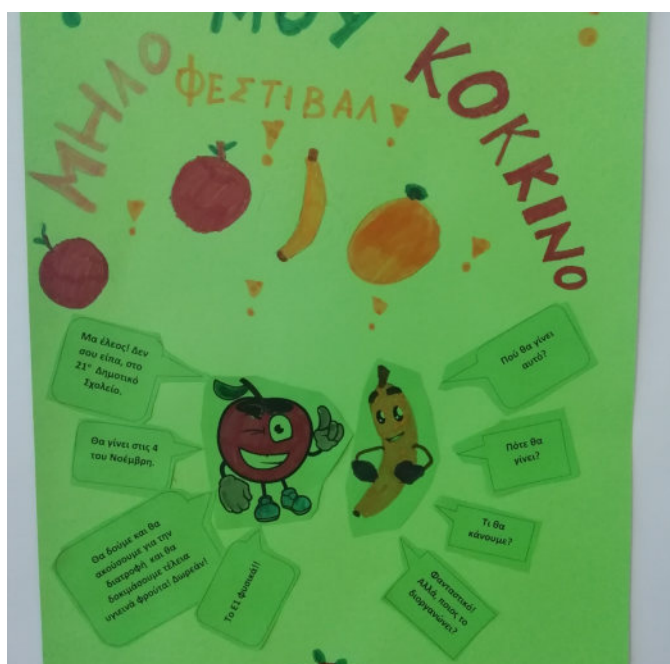
Description

Children, after setting the breakfast table, tasted the delicacies they had brought to school, and did not hesitate to feed each other as a sign of care. During the activity, it is important to discuss the nutritional elements of natural foods and how to prepare them. They can also search the web for sources and found the value of vitamins and minerals in health. Another essential aspect is to discuss the issue of obesity and how it can be tackled through prevention. Once finished, students can create a video for the rest of the school related to the importance of nutrition and write a description. Children really love this experience because they have an active role, they collaborate, taste... Apart from that, they also reflect on nutrition issues and somehow change their eating habits.

The nutrition day can end with the reading of a fairy tale, for example: "Don't eat what you are served".

Resources (materials)

Different local food.
Laptops with Internet connection.



Visit to Pancretan Stadium

Learning areas

A4, A9, A10, A11, A13

Objectives

- To be familiarised with Olympic sports.
- To cooperate between students.
- To enjoy the experience.

Description

This activity is totally related to the Physical Education class, as part of its PE programme. Students visit the Pancretan Stadium and, with the help of experts, different sports can be presented like running, vortex throw, fencing, rowing, long jump and archery.

Apart from visiting a place around the city, students are more conscious about the plenty of opportunities they have, and they can also discover new sports they could not imagine they like.

**Resources
(materials)**

Bows and arrows
Vortex
Fencing swords
Rowing simulator



Blueberry Pie

Learning areas

A1, A3

Objectives

- To learn what kind of places blueberries grow in.
- To identify the blueberry and pick enough berries for the pie.
- To follow the recipe and understand the measures of the different ingredients in order to cook the pie correctly.

Description

Firstly, there is a previous activity done in the class where students in groups have to find a recipe for a berry pie. After that research, the recipes are shared and compared and finally, one is chosen. From the recipe, teacher can ask different questions such as:

- How many berries are needed?
- How can you measure the berries?
- Where does blueberry grow?
- How long do you think it will take for you (or your group) to find enough berries for one pie?

After this interesting discussion, it is time to go outdoors and find them! Previously, the teacher must have gone to a place to be sure that students can find enough blueberries and guide students to find this place. Once they have picked enough, checking the measure with a weighing scales, they have to stop the chronometer and compare the timing. They can calculate the difference between the reality and the estimation.

Once at school again, it is time to bake the pie in groups, following the steps of the recipe.

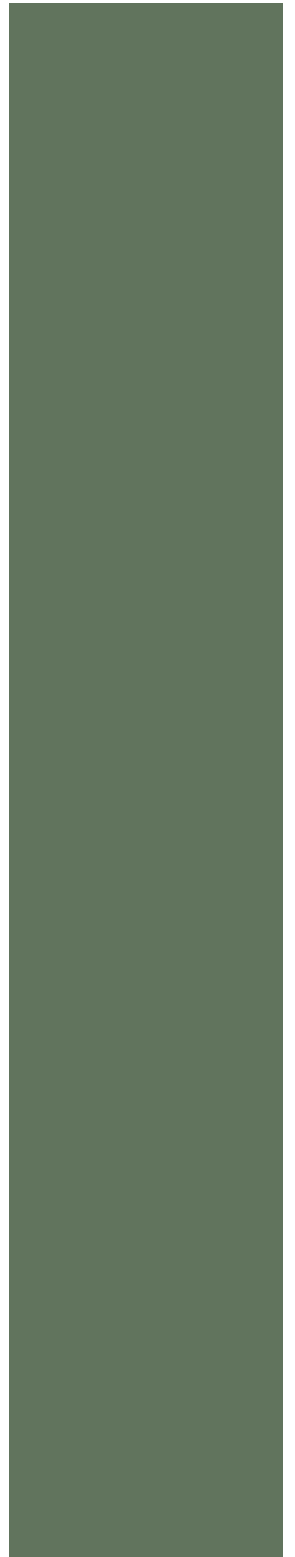
Last, serve the pie and, of course, enjoy together.

**Resources
(materials)**

Laptops. The recipe and the ingredients. Measuring cups.
Pans for the pies. Ready-made dough.



3-12 YEARS OLD



Little School of Earth

Learning areas

A1, A13, A4, A19, A13

Objectives

- To understand life in the forest.
- To meet some animals and learn some important information about them.
- To respect nature by cultivating new ways of saving the waste (e.g. composting, using the used paper cups as pots for the plants, etc.)
- To learn all parts of a plant and how to plant one.

Description

This is a private activity, the school decided to contact an expert in permaculture in order to share with children new ways of cultivating and, at the same time, being respectful with nature and the world.

The first contact was an introduction to the animals and plants that exist in the forest. After, children had the opportunity to deepen into hens' life.

Another important aspect was to show the way how compost is created (a process called composting).

Regarding flora, students had the opportunity to familiarise with the aromatic herbs of Crete. To conclude this activity, students did a bouquet of them, so they had to recognise them following the steps of the previous activity and write down the herbs chosen.

Resources (materials)

Little School of Earth resources.



Vegetable Garden

Learning areas

A1, A2, A3, A4

Objectives

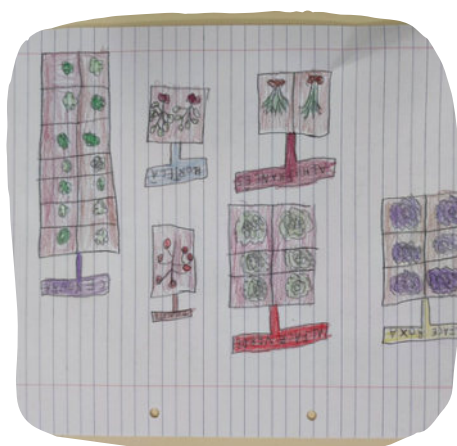
- To make students aware of the importance of preserving environmental resources for sustainable food production.
- To establish contact with nature.
- To create a green and productive area in which everyone feels responsible.
- To observe and investigate the development of seeds and plants.
- To make students aware of the importance of eating healthy and organic food.
- To taste food sown, cultivated and harvested by the students.

Description

To make children participants of the process since the very beginning, it is essential to increase their sense of responsibility. Therefore, children can start by drawing how they would like the vegetable garden to look like. After that, they write an email to the responsible for Funchal City Council in order to ask for their help and obtain the plants and seeds needed to start the vegetable garden. After a positive answer, children plant the seeds and plants and also have to make signs to identify the vegetables and aromatic herbs, so everybody can learn. It is important to plan a schedule in order to take care of the vegetable garden to water and take away the weed. When the vegetables are grown, the children pick them and eat them in their school meals.

**Resources
(materials)**

Seeds and plants
Nameplates.
Gardening tools adapted to kids.



English Language

Learning areas

A7, A8, A14

Objectives

- To learn the English words for the vegetables of the vegetable garden.
- To make the nameplates in English, so everybody who visits the school will be able to know what is planted in the garden.

Description

Before going outdoors, in the different English classes, the teacher prepares activities and games in order to learn and remember the name of the vegetables. Once students are ready, the teacher prepares a game outdoors with small cards with the name of the vegetable. The students, using some clues and the knowledge learned, have to find out which vegetable matches. After that, they do the nameplates and put them in the vegetable garden.

**Resources
(materials)**

Computer with internet connection.
Printer
Laminating machine and plastic cards.
Pencils and markers.
Samples of the vegetables for the game.



Natural xylophone

Learning areas

A1, A2, A4, A5, A6

Objectives

- To explore the space and look for different natural elements (sticks, stones, leaves, earth...)
- To discriminate aurally, the sound of the elements inside the glass jars by playing with the amounts inside each jar.
- To build a "xylophone" and experiment with sound.

Description

In this activity, children have to explore the space in order to find different natural elements that they can put inside glass jars. Once they have the elements, the glass jars will be arranged on a flat surface to be able to insert some elements found inside. At this point, the children can play with the quantities to find differences and similarities in the sound the jar makes if we poke it with a stick. In this way, everybody can create a natural "xylophone" with different sounds arranged by pitch.

Before doing this activity, it is essential that students have previously worked on that instrument and know its characteristics.

Resources (materials)

Seven glass jars.
Natural elements such as: sand, stones, leaves, branches, sticks, snails...



Friendship bench

Learning areas

A2, A13, A15

Objectives

- To give students the opportunity to have a peaceful place to talk or to eliminate feelings of isolation and loneliness.
- To develop the sense of empathy towards the others.

Description

It is scientifically proven that nature and the outdoor environment help people to express their feelings and to connect with each other. This is the main reason why the Friendship bench is created. It is important that students have a space where they feel comfortable and have the opportunity to talk between them, to express how they feel, to find solutions to some problems... and, finally, get better.

Resources (materials)

Artistic materials such as: paint, brushes...
Imagination and creativity.



Plant a tree

Learning areas

A4, A5, A13

Objectives

- To know the process of planting a tree and how to take care of it.
- To raise children's awareness of the importance of trees on our planet (they provide us oxygen, shade, and fight global warming).

Description

Our calendar has important days that children must know and be able to celebrate them. Therefore, to celebrate the Tree World Day, children plant a tree in the school garden. As this a World Celebration, the teacher can reflect with the kids the magic of the whole world doing the same activity in the same day, there are no barriers.

Resources (materials)

Gardening tools adapted to kids.



Footprints and clue

Learning areas

A3, A4

Objectives

- To locate footprints in the forest and match them to the animals using a determination key.
- To find the animals living in the forest thanks to the different clues (droppings, footprints, food remains...) but also by listening to the different sounds.
- To discuss about the climate by looking at the fungi and moss on the trees.

Description

Children go in groups with the teacher so that they can find clues about the inhabitants of the forest.

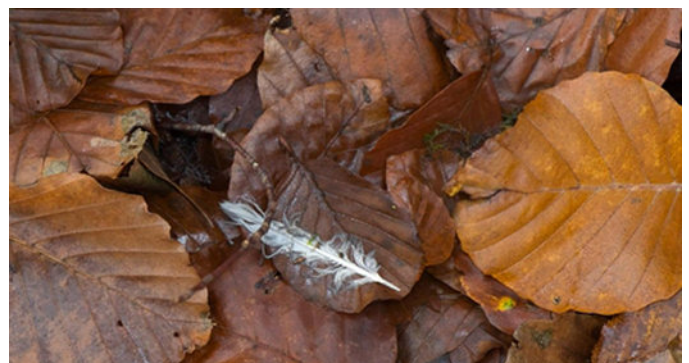
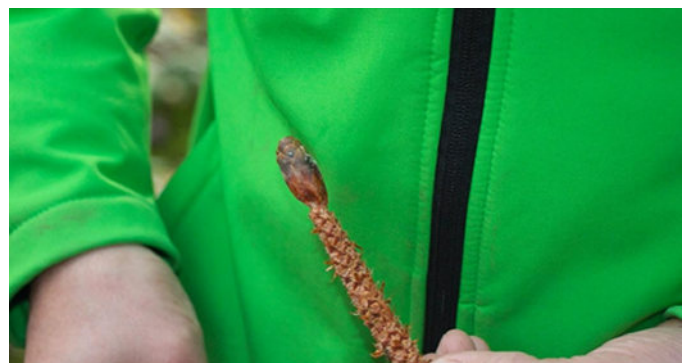
The teacher explains that they will have to observe carefully in order to find different clues: droppings, paw prints, food remains, etc.

Depending on what the children find, each element is analysed on the spot or in class with the help of the determination key in order to know the cause, the origin...

It is a good idea to take pictures and collect all the photos in a notebook, so they have their own observations and determination key.

Resources (materials)

Camera
Determination key



09 | ASSESSMENT

The assessment should be seen as another important moment of the students' learning processes. As it is already mentioned in the Methodology part of the guide, students must reflect about their own learning process in order to be aware of: what they know, the doubts they have, what mistakes they make, what happens to them when they make a mistake, what they can do to correct the mistake, what strategies work for them to learn... Therefore, the assessment becomes also a learning moment.

Students must learn to manage their own learning and this learning allows them to become more autonomous and, at the same time, they are becoming competent throughout their lives.

This assessment must be practised plenty of times, so students become more competent reflectioning about themselves and being able to find their own strategies to keep going. To achieve this competence, students must have adults as models and time because identifying obstacles and mistakes and finding ways to overcome them requires time for self-reflection.

The assessment must not be only focused on the obstacles and mistakes but also on these positive points; so children are conscious about their potentialities, what it is useful for them... and they have these strategies with them in order to apply them in many contexts.



During the project, teachers have shared with students different assessments: orals, written, individual, in group...

Here you can find some examples:

Draw or write your answers in the boxes below the question.

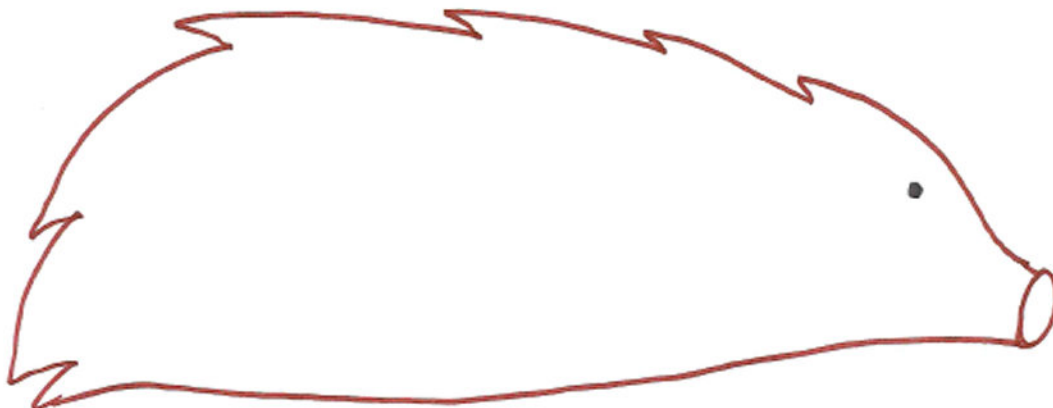
1. What did I learn today?



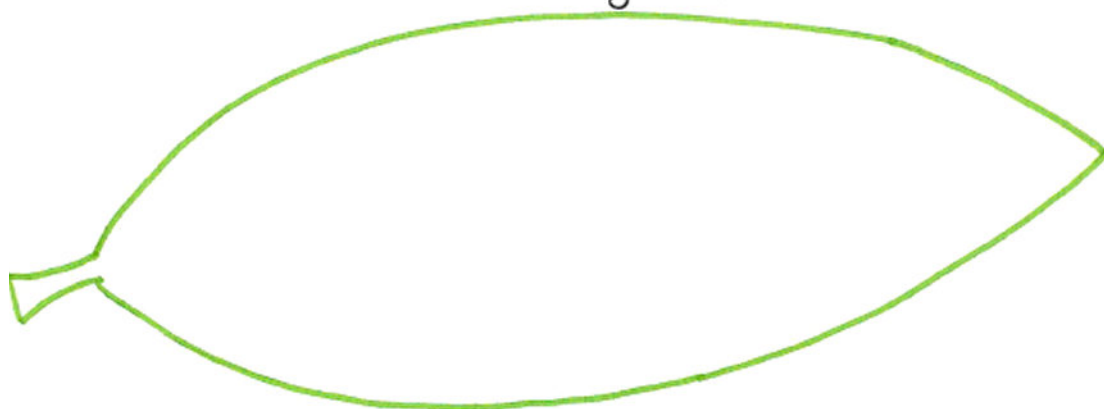
2. How did I learn?



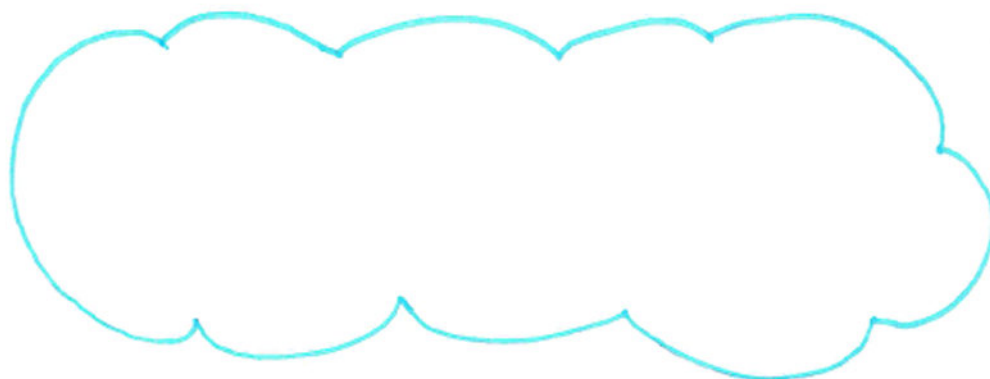
3. Who did I learn with?



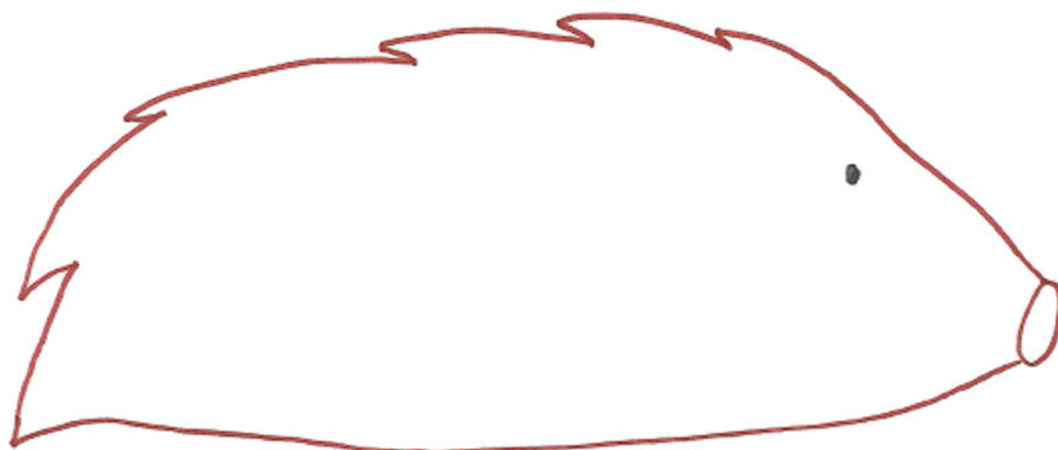
4. Did I teach someone today? Who?



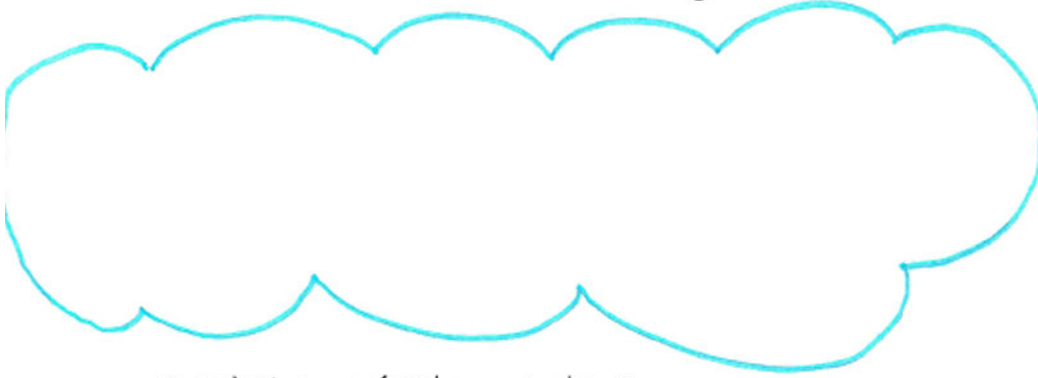
5. What do I want learn to more about?



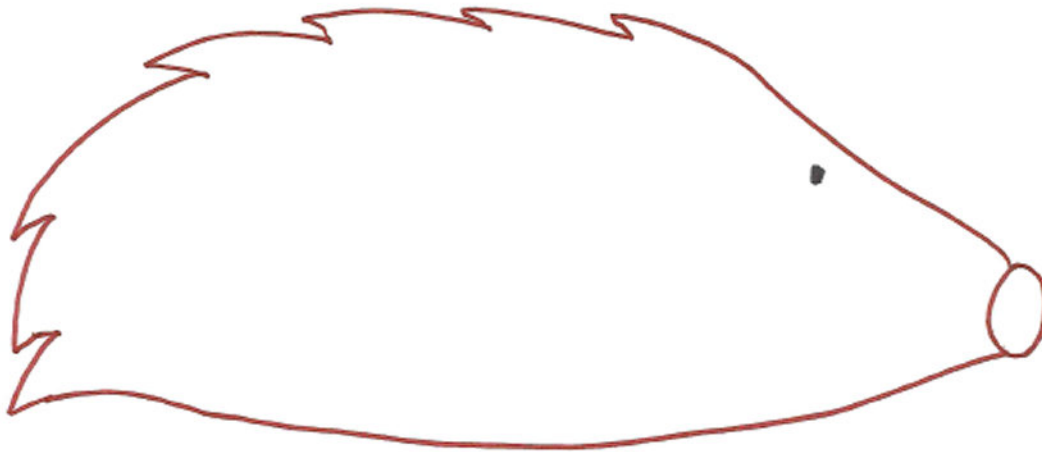
6. How do I use my new knowledge in the future?



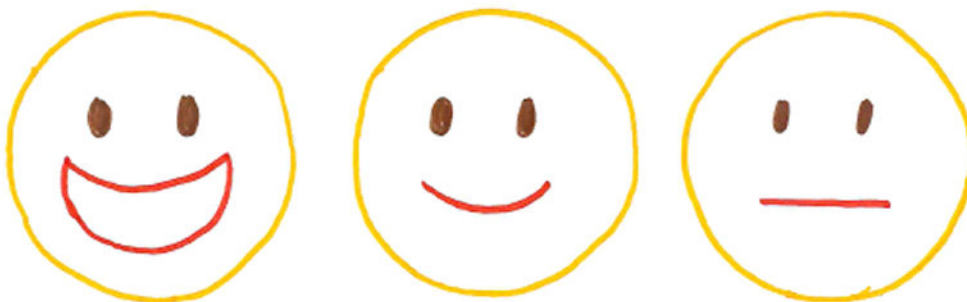
7. How did we respect nature today?



8. What surprised you today?



How was your day?



10 | CONCLUSION

After these two years of project, teachers have arrived to the conclusion that learning together is positive either for students and also for teachers. Students and teachers have the opportunity to develop a lot of skills and to be more open-minded to all situations. Discussing different topics and sharing different points of views allows us to reflect and improve our own professional practises.

In the introduction, it is specified what teachers from the project believe and think about *Learning Outdoors*. Once the project is done, it is very important to add and contemplate that learning outdoors does not finish in that space (outdoors), but also with the combination of indoor learning. Because in that way, students can deepen in these new observations, hypothesis, explorations... Apart from that, learning outdoors can also be in the playground of the school, where kids can find an ant nest and start a fantastic project about that situation.

Apart from these sporadic or prepared situations, it is essential that teachers contact with voluntaries and experts as learning experiences become more enriching mainly for children but also for teachers.

Finally, teachers still believe the importance of being outdoors when most of the kids spend too many hours in front of TV, computers or any other indoor activity.



REFERENCES AND CONTRIBUTORS

*Teachers' role: this chart is the result of a reflexive dynamics done by the teachers who participated in Greece meeting (2nd meeting of the project).

**Materials and resources: this section of the guide is the result of a dynamic and also a discussion done by the teachers who participated in Finland meeting (3rd meeting of the project).

*** Security and safety: this section of the guide is the result of a role playing dynamic in which the adults were representing different situations that can happen when going outdoors. After this dynamic, a reflection process was done. These agreements were taken in Finland meeting (3rd meeting of the project).

**** Methodology: during the 4th meeting in Portugal, the teachers who participated in this meeting carried out a dynamic to reflect about the methodology when learning outdoors. This dynamic consisted of different activities in which the role of the children and the attitude were totally different: passive, active, critical thinking... After, teachers reflect on the best way to learn outdoors by doing a brainstorming of clue words.

***** Assessment: this section of the guide is the result of a reflexive process during the last meeting in Spain. During the whole project, Finland has prepared assessments for children and students, where the most important aspect is the child's reflection about their personal learning process. As all the teachers have also experienced this kind of assessment, we did a brainstorming about the importance of keeping these assessments during learning processes.

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Contributors:

- **Ecole Communale (Mons)**. Region: Prov. Hainaut. Country: Belgium.
- **21st Primary School (Heraklion)**. Region: Κρήτη (Kriti). Country: Greece
- **Nahkiala School (Akaa)**. Region: Pirkanmaa. Country: Finland.
- **EB1/PE da Cruz de Carvalho (Funchal)**. Region: Região Autónoma da Madeira. Country: Portugal.
- **Escola Sant Llàtzer (Tortosa)**. Region: Catalonia. Country: Spain.

