Learning Bubbles

TOOLKIT

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LEARNING BUBBLES is an experimentation of collaboration between very different worlds: school, community urban gardens and the digital world. A proposal that seeks to combine the beauty of the natural environment, technological innovation and tradition to promote the well-being of its local communities.

Project partners

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INTRODUCTION

Learning Bubbles' idea was developed in the wake of the Covid-19 and its effects on education across the world. Most of the educative systems, if not all, were not prepared for the shift that happened: in one week, sometimes in one weekend, schools had to organize online classes and close their facilities. Online classes were organized in a very efficient way by some countries, while in others it was chaotic and left to the personal initiative of teachers, many of whom lacked adequate digital skills. Adding this to the lack of digital equipment, in particular of the poorest families, a logical consequence was the increasing of early-school leaving, while the different European policies contributed to reduce it in the previous years. Therefore, Covid-19 increased the main challenges already existing in the current systems: early school leaving, lack of digital skills among educators. As mentioned in the "Operational guide and training format", in the chapter Pandemic effects on learning these challenges were already well documented by various international studies and organizations such as the Economic Co-operation and Development (OECD).

The Covid-19 pandemic was also an opportunity. The global trend in distance learning, using digital tools, was reinforced and all the stakeholders already involved in it were able to commit themselves even more, bringing with them the rest of the educational community.

Within this context, Learning Bubbles project developed its methodology at the center of the main 3 types of education: formal, non-formal and informal. Formal education is the traditional structured education system within schools. Non-formal education is education, structured like the formal one, but being organized in other contexts than the schools (NGOs, sport clubs, youth centers, community-based adult education etc.). It focuses on skills and competences usually not related to formal education. Finally, informal education is referring to lifelong learning process, with all the attitudes, skills, values, that are coming from the daily environment and experience of the people.

Learning Bubbles' approach is to bring activities directly into the urban community gardens. They have proven to be places that have a large series of benefits, linked to health and wellbeing, social cohesion, and community resilience, as well as defending the biodiversity within urban areas. All these benefits were even more important during a time of pandemic. People were not allowed to leave their cities, under lockdowns, feeling psychological stress or despair, sometimes with limited access to fresh products due to mobility restrictions. Community gardens were part of the answer and all data show that the interest of new users, volunteers and members increased.

Regarding the relation between urban community gardens and education, we can also underline that experience shows that young people feel more at ease when they are not formally evaluated under the monitoring of teachers in a formal context. Without this pressure, the potential of some of them is released and they can develop their skills more freely, with a direct effect on their self-confidence.

Throughout past European projects, 3 organizations of Learning Bubbles consortium, contributed to the development of the community gardens through the training of their organisers, the Gardenisers. They have a very important role in creating mediation, dialogue, facilitating the group and being able to manage the community gardens on a long-term perspective. Through their facilitation skills, their ability to work with all the members, volunteers, and users, the Gardenisers play a key role in the implementation of Learning Bubbles project.

Learning Bubbles aims at providing innovative resources and tools to schools using a digital communication platform and also iPads to help the youngsters, usually vulnerable students or at risk of educational exclusion, to gain confidence in their own skills and competence, and as a ripple effect, to allow them to reinforce their results in the formal system. The activities and sessions of Learning Bubbles pathway are programed through an online communication platform that also includes the evaluation process. After each session, the participants fill an evaluation and assessment questionnaire, that includes non-formal and visual indicators to ease the process and adapt it to the target group of the project, i.e. teenagers.

The implementation of such pathway requires therefore various types of stakeholders: the **schools** represented by teachers and headmasters, the **community garden** organizers also known as Gardenisers, the educators to digital through the **non-formal organizations** involved in the project, **the youngsters and their parents**. These main actors are essential in the development of the project and therefore the main actors signing the learning agreements that set the context and pedagogical framework of each intervention.

This guide focuses on 4 operational tools that allow the implementation of the pedagogical framework of reference, as described on the "Operational Guide and Training Format", during the experimentation phase. During the autumn 2022 and Spring 2023, schools, coordinating organizations, community gardens and youngsters and parents from Italy, France and United Kingdom took part in activities during which the teenagers could use all the resources present in community gardens as pedagogical and non-formal means to improve their skills and competences, according to their individual needs as defined by the schools or potentially the youth centers involved in the project. To reach this goal, a pedagogical framework was defined in the first intellectual output of the project.

This Toolkit is divided in 4 main sections:

Protocol of intervention and implementation

This section defines the protocols of intervention and implementation of the Learning Bubbles pathway. These protocols include two main parts: the description of the implementation itself, and suggestions of activities.
We gathered a collection of propositions of activities for school students, related to some school subject and matters. Some of these activities use apps available on iPad, and we also suggest other possible apps. All these activities are examples of what can be done and need to be adapted to each context or country.

Presentation of the communication system

This section presents the online platform architecture and its functionalities, through the form of a user guide to be able to use its different functionalities the best way possible. It was created by the developer of the platform and is presenting the menu and possibilities including illustrations and screen shots.

Digital data security protocol

This section starts with an introduction on cybersecurity applied to school, before entering the specific details of the project. A protocol to be applied while working with minors takes into consideration the main rules from the different countries and the trainings already existing. This section includes an IT charter about the use of the communication system (online platform) and devices used during the implementation of the activities. It includes the way information is accessed and the rules of good conduct in the use of the systems to be signed by the different stakeholders engaged in the process.

Commit the local educating community

This section aims at presenting how the different stakeholders can engage in a better way the local educating community. It includes a mentoring and tutoring guide, the template of learning agreement to be used and adapted by the partners of the project and any organization willing to replicate the process.

PROTOCOLS OF INTERVENTION AND IMPLEMENTATION

This section defines the protocols of intervention and implementation of the Learning Bubbles pathway. They have an essential part of the project activities as they are at the core of the concept that was developed: they represent the learning context and framework that is established for all stakeholders within the pedagogical approach and use of the garden communities' resources to improve the skills and well-being of the students involved. They are and symbolize a safe place, outside of the school system and considering the pandemic context, where the learners can develop themselves according to the needs identified by the schools.

The learning bubbles

The Learning Bubbles project grounds on the use of a specific equipment that might be adapted by other organizations if they want to replicate the project. What is this material? This specific material is composed of the following elements:

- Transparent bubble tent
- Adjustable ergonomic folding desk
- Adjustable ergonomic chair
- Tablet with case and built-in keyboard (iPad in the case of the piloting of the project, but it can be in further application, according to the needs and/or the material already available tablet under Android, hybrid laptop, etc.)
- Wireless headset with microphone
- Pen for graphic interaction (writing, drawing, etc.)
- Charging and storage units

Some of these elements are no required for all activities, but they are tools that could help to implement local activities within the gardens and they can depend or not on part or all the material designed. The most important is that the protocol itself, as presented below, is respected to optimize the results.

Implementation protocol

During the experimentation phase, Learning Bubbles provided in France, United Kingdom and Italy a pathway for selected students who attended the bubbles, according to the individualized plan agreed between schools, digital educators and gardenisers. This group dynamics is at the core of the project as each of these stakeholders has a specific expertise and the collection of all of them is what can ensure or favour its success and allow the participants to reach the goals they are giving to themselves and to the other participants, in particular the students.

The following paragraphs present the main roles of the different actors of the implementation. They are different roles that can be, in some local context, assumed by the same person, because of local specificities, for example if the teacher is also a Gardeniser, if the Gardeniser is also a digital educator, of if the teacher is also a digital educator. Hence, these descriptions are not prescriptions but an overview of the different tasks to ensure the best implementation of the project.

Digital Educators

They take care of the individual learning path of the student in accordance with the indications of the individual plan. They develop outdoor and traditional educational activities that integrate digital methodologies.

In details, they can:

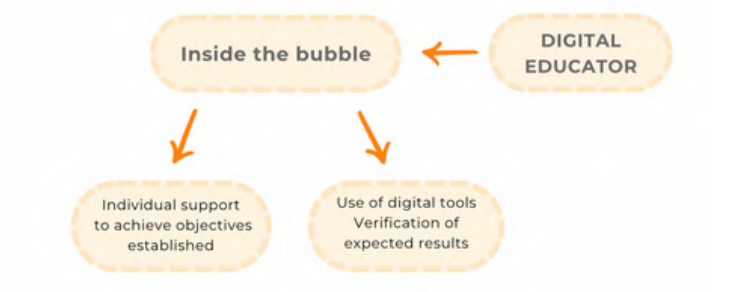
- Take charge of the learners within the community gardens
- Update their status and progress on the platform
- Support students in their school assignments, cooperating with teachers
- Develop tools and teaching units according to the needs and objectives given
- Experiment the use of digital tools in relation to outdoor activities and within the context of community gardens
- Elaborate activities even for small groups out of the bubbles

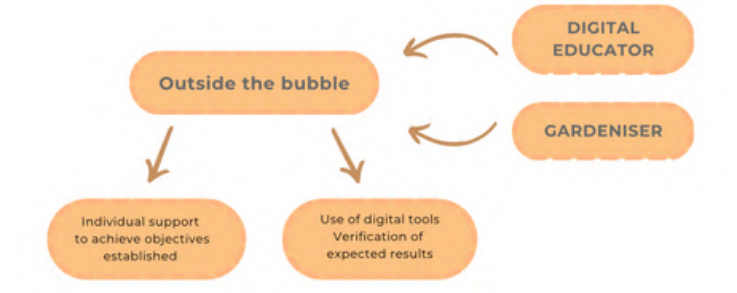
Gardenisers

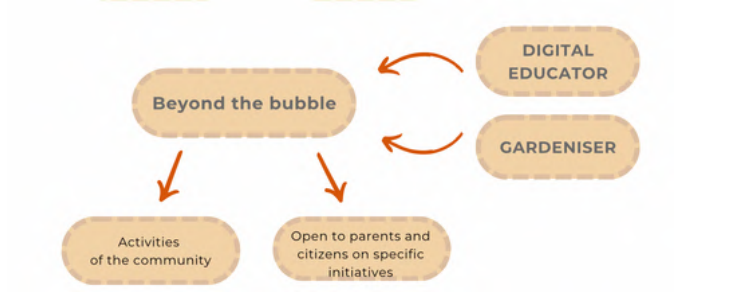
This function integrates the educational offer of the digital educator with proposals specifically related to the resources and possibilities of the urban garden. He/she designs and proposes activities, always in cooperation with the digital educator, that actively involve small groups of students and the gardeners of the community garden as well. He/she is a resource person for proposals that involve the community.

Concretely, the Gardenisers can:

- Deal with the physical management of the learning bubble in the garden: opening of the space, preparation of the work station, checking of the bookings, closure of the space
- Exchange with gardeners to inform them about the Learning Bubbles activities and favour their involvement
- Elaborate and develop educational activities and knowledge of urban gardens and on different topics of interest, in particular linked to the garden
- Develop hybrid activities with the digital educators
- Propose activities for the community







School teachers

The school teachers have a crucial role as they represent the “sending” organization, the schools. They are the centre of the project as they are the ones able to identify the needs of the students, knowing the pedagogical situation of each of them, their needs, the skills needing to be reinforced. They are in contact with all the actors along the project, whether they are coordinating organizations through educators to digital, gardenisers, learners, parents.

Here is a non-exhaustive list of what they can do within the implementation of the activities of the project:

- they identify the students who could benefit from the project
- they present, within the communication platform of the project, the situation of the students or learners and the educational objectives through the Learning Bubbles pathway
- they attend monitoring and evaluation meetings, with the digital educators. They are also in touch with the students’ families
- they can accompany the students to the urban community gardens and cooperate with gardenisers and digital educators

Activities for the implementation

Coming from the pedagogical framework presented in the introduction, the activities to be implemented need to be adapted by all Gardenisers, educators, teachers (when this applies). The activities that we defined are examples that can be used as they are presented, but also inspirations to be adapted to each national or even regional context, to each school system. Indeed, a school might want to use the bubbles to complement their own traditional indoor activities to have formal extra-credits, while a community garden or youth center having projects with dropouts or possible dropouts has different needs.

The activities proposed are therefore either linked to school matters that are “universal” such as SSTEM (Science, technology, engineering, and mathematics) or related to the development of soft and social skills. The dozens of examples of activities are completed, at the end of this section, by a non-exhaustive list of applications that could be used on iPads or other similar material.

One specific point to underline is that the core of the activities isn't the use of the iPads: it is the use of the community resources, with the support of the iPads. Some activities directly include the use of iPad applications, while others are focused on the gardens, with a use of the iPads limited to the communication platform and the evaluation process. Learning Bubbles doesn't want to use iPads to use iPads, we propose to use the community gardens natural resources to help students, potential dropouts or even dropouts with the help of iPads when it is necessary. These activities take part outside the bubbles, as well as inside them.

The activities can be divided into 4 main categories, when they are based on the use of applications:

- augmented reality
- work with photos
- work with drawings
- making videos

The approach used to define these activities was cross-curricular, transversal. Indeed, these activities are the result of joint work between the project partners, each with its own specificity and background in the field of non-formal, formal and outdoor education. The activities we identified for the implementation are examples of what can be done with the schools, within the gardens, in an outdoor space.

We want to underline that these activities were not developed as prescriptions and obligations. They show different possibilities that might not match individual needs. Therefore, they have a value of example and can inspire new activities, adaptations, and it is also possible to organize activities totally different than the ones presented here. The most important is that the schoolteachers, in contact with the community gardens and the digital educators (sometimes, these roles can overlap according to the local context) define first the individual (or group If this applies) needs to be sure that the activities fit and have the impact expected on the target groups.

Activity sheets

Activity title	PlantNet
Group size:	1 person per iPad
Group age:	11-18 years old
Activity duration:	1 hour
Learning objectives	To have a better knowledge of the plants and trees existing in the environment of the community gardens
Relation to subjects	Biology and natural sciences
Materials	iPad Pro
App	PlantNet
Preparation	Checking that the last version of the app is installed in the iPad. To do a first walk in the community garden so the trainer/teacher/Gardeniser can check that the app is indeed recognizing the main plants and trees before the activity. The facilitator will identify at least 5 plants to be assigned to each student.
Step by step instructions	The students will need to walk around the community garden / green space where the learning bubble is located. They will look for the 5 plants that were assigned to them and will return to the bubble when they identified them. (30 minutes) After that, a debriefing session is organized between the facilitator and the youngster. (30 minutes)
Evaluation	During the debriefing session, each youngster will present the plant he was assigned and the method he used to identify them. They will compare them and see that different ways can lead can to the same result.

Activity title	Augmented reality
Group size:	1 person per iPad
Group age:	11-18 years old
Activity duration:	2 h 30
Learning objectives	To have a better knowledge of the plants and trees existing in the environment of the community gardens
Relation to subjects	Biology, Natural sciences
Materials	iPad Pro
App	PlanTale, Meter, Safari, Tayasui Sketches School / Keynote, AR Maker, Clips
Preparation	Checking that the last version of the app is installed in the iPad. To do a first walk in the community garden so the trainer/teacher/Gardeniser can check that the apps are working to rehearse the activity
Step by step instructions	Introduction : The life cycle of the plant (PlanTale) Children will use PlanTale to briefly study the life cycle of the plant and its structure (parts, reproduction, photosynthesis...). The exploration, manageable in AR, will be guided by the teacher thanks to the use of the Apple Classroom platform. Some screenshots will be taken. 15 minutes : We plant the seeds (Meter) With the use of iPad children will be invited to "mark" in AR equidistant points wide enough to plant a series of seedlings (group activities)

	15 minutes : What will be born? (Safari) Children will do a short online search to understand what the plant whose seed they have planted will look like as an adult. 20 minutes : My Map (Tayasui Sketches School / Keynote) Children will use the Pencil on Tayasui Sketches School or Keynote to draw how they imagine the seedling once it is ticked, then save their drawings on a transparent background in photo 15 minutes : The Dream of My Garden (AR Maker) With AR Maker children will frame the urban garden just planted and they will "throw" in AR their seedlings, viewing them from the iPad and recording everything, and then save the movie to your camera roll. 30 minutes: What have we done? (Clips) We will use the Apple Clips App to put together the materials and create a video that tells what has been done 30 minutes: Let's share! Leaving the activity you will share together the learning and, if possible, even some of the videos created.
Evaluation	The evaluation will be an informal evaluation allowing the students to discuss how they felt, how this exercise helped them to learn about the plants life.

Activity title	Photosynthesis
Group size:	6-10 students
Group age:	11-16 years old
Activity duration:	1 hour.
Learning objectives	Understand the process of photosynthesis Know the structure of a stem and leaf
Relation to subjects	GCSE Single Science English: writing to explain Maths: plotting a graph
Materials	https://www.bbc.co.uk/bitesize/guides/zq239j6/revision/1 https://www.bbc.co.uk/bitesize/guides/zs4mk2p/revision/5 Hand held microscope and software Scalpel, cutting board Pens and paper Two plants of same age and species Dark plastic for covering one plant
Preparation	Access to several plants (two per student) Risk assessment for all activities
Step by step instructions	Follow revision steps on website above. Collect leaves from various plants, including stems. Dissect leaves and look at structure under microscope Draw and label diagram of leaf and stem parts Cover one plant with dark plastic and leave in a safe place Place one plant in optimum growing conditions Write notes and take photos of plants' condition Return in one week to check condition and growth of each plant Use data to create graph over time
Evaluation – How did you evaluate it?	Test knowledge of key terms by labelling a blank diagram of leaf and stem

Activity title	Photosynthesis and light intensity
Group size:	6-10 students
Group age:	11-16 years old
Activity duration:	1 hour. Additional time to observe pond under different weather conditions
Learning objectives	Understand the process of photosynthesis Know the structure of a stem and leaf
Relation to subjects	GCSE Single Science English: writing to explain
Materials	https://www.bbc.co.uk/bitesize/guides/zq239j6/revision/1 https://www.bbc.co.uk/bitesize/guides/zs4mk2p/revision/5 Hand held microscope and software Access to a pond with elodea weed Pens and paper Test tube Torch app on tablet/ device
Preparation	Access to pond with elodea or similar Risk assessment for all activities
Step by step instructions	Follow revision steps on website above. Observe pond under different conditions (cloudy day, sunny day, etc) to see bubbles produced by photosynthesis. Collect elodea samples to recreate process in test tube inside Learning Bubble or appropriate workspace in community garden. Use microscope to observe bubbles Measure rate of bubbles with and without torch Draw diagram (lower ability) or write up scientific method (higher ability) of process of gaseous release Extension activity: The volume of oxygen produced could be measured by collecting the gas produced in a gas syringe back at the school lab when available.
Evaluation – How did you evaluate it?	Understanding measured by writing up the experiment (required practical for GCSE)

Activity title	"Earth-Worm Mission"
Group size:	10-12 students
Group age:	12-15 years old
Activity duration:	1st Step: 30 minutes 2nd Step: 1h30
Learning objectives	Understand the concept of Biodiversity Discover what kinds of life is in the soil
Relation to subjects	Biology, Ecology
Materials	iPad, container, fine tweezers, watering can, mustard, earthworm determination key, Community Garden
Preparation	Take a walk in the community garden to identify different areas (undug areas, path's, unused areas, etc.) before the activity. Provide a map (Google Earth) of the Community garden and indicate the chosen areas on the map (genial.ly: interactive picture).
Step by step instructions	**1st Step**: Estimate Life in the Soil Plant a piece of white, organic cotton clothing in the ground (socks, briefs, etc.); Dig it up 2 months later and take a picture with iPad to see what has grown or lives in the decomposed piece of cloth and in the area it was put in.; Complete the interactive map. **2nd Step**: Estimate soil biodiversity (working in the same area as 1st step) On the iPad follow the instructions of the genial.ly presentation: https://view.genial.ly/5fcf54f5e9574b0d399ac7f3/presentation-mission-ver-de-terre - Watching movies, - Reading documents - Biodiversity questionnaire - Earthworm harvest - Identification - Collection of literature - Complete the map (genial.ly) Based on the activities and research make conclusions on the soil fertility in the community garden.
Evaluation	Evaluate: biodiversity in the soil, list the number of living things in the soil, show the importance of earthworms

Activity title	“Nowaterra: A planet in your hands”
Group size:	1 person per Ipad
Group age:	15-16 years old
Activity duration:	2 hours
Learning objectives	Notions of biodiversity, sustainable development Impacts of human activities
Relation to subjects	Biology, Ecology
Materials	iPad, app: http://www.nowatera.be/
Preparation	Distribute the missions according to the number of students
Step by step instructions	In the future, settlers have landed on a distant planet: Nowatera. By intervening in the landscape (construction of a dam, use of pesticides, construction of a vegetal curtain to protect themselves from the wind), they imperceptibly modify the ecosystem of the planet. Sometimes disastrous consequences far removed from the root cause appear.The objective is to make students understand the global balance of our planet and to make them aware of the importance of preserving biodiversity. 1st Step: individual work on 1 assignment per student 2nd Step: Pooling chosen options and consequences on planet 21 Redo the mission to improve the result or choose another mission
Evaluation – How did you evaluate it?	Informal evaluation allowing the students to discuss how this exercise helped them to learn about the sustainable development et biodiversity.

Activity title	INTERNATIONAL MIGRATION
Group size:	10 students
Group age:	13-14 years old
Activity duration:	1h+1h
Learning objectives	Discover the types of migrations around the world Understand the reasons for migration Deconstruct prejudices and stereotypes about migrants
Relation to subjects	Geography Civic education
Materials	iPad
Preparation	1st step methodology for the study of documents test to identify stereotypes and prejudices 2nd step Methodology for use app genially
Step by step instructions	1h Watching the various documents (testimony, reports, maps...) proposed on ipad Recording the requested informations Complete the proposed table 1h Use table informations and pictures to create a interactive document with genially app
Evaluation – How did you evaluate it?	Table checked after the first step Test about items after the second step

Activity title	SERIOUS GAME: DISCOVER FIRST WORLD WAR
Group size:	1 student per ipad
Group age:	14-17 years old
Activity duration:	2h
Learning objectives	Discover the different aspect of the war Understand the concept of total war Learn by playing
Relation to subjects	History
Materials	iPad app “Apocalypse 10 destins “
Preparation	study the phases and some important aspects of the war in classroom Distribute the missions according to the number of students
Step by step instructions	Distribute the missions according to the number of students Individual game time pooling of different experiences
Evaluation – How did you evaluate it?	Informal evaluation allowing the students to discuss how this exercise helped them to learn

Activity title	LITTLE FARMERS GROW UP
Group size:	10-12
Group age:	-
Activity duration:	2 h
Learning objectives	Identify which species can be planted
Relation to subjects	Maths : strategy research Science : observing natural phenomena Tic : research in the multimedia laboratory Civic education : respect for the environment and processes
Materials	iPad Pro, Lim
App	Safari
Preparation	make a to-do list and plan the actions to realise the garden
Step by step instructions	visit and observation activities floor plan: draw appropriate spaces to be used for the garden determination of spaces : deciding if you will grow on the ground or in containers
Evaluation	evaluation will be informal and based on students' interaction, involvement and problem-solving skills

Activity title	THE VEGETABLE GARDEN I WOULD LIKE
Group size:	class divided into groups
Group age:	14-16 years old
Activity duration:	3 h
Learning objectives	experiment with activities that allow for the analysis of topics related to food, production and consumption
Relation to subjects	Science, Maths Civic education
Materials	soil preparation , sowing and planting of seasonal seedlings
Preparation	Division into groups and distribution of assignments
Step by step instructions	They identify the different methods of preparation and setting up a garden. They proceed with planting
Evaluation	self-assessment sheets

Activity title	PIZZA GARDEN
Group size:	4-5 students
Group age:	14 - 18 years old
Activity duration:	6 weeks
Learning objectives	British Values, valuing cultural heritage, healthy eating, personal achievement, social importance of food and eating.
Relation to subjects	Maths: budgeting, calculating growing time, costing comparison. English: writing to explain, advertising, writing to describe PSHE: healthy eating Science: parts of a plant, taking cuttings, soil structure, life cycles History: origins of the pizza, Italian culture and history. Information Technology: graphic design, research.
Materials	Vegetable plants, herb bed, wheat crop, cob oven (or kitchen). Pizza base ingredients, plant labels, watering, etc. Pots, seed trays, compost. Italian words and phrases app. Italian culture research internet. Graphics app for poster.
Preparation	Growing area suitable for herbs and outdoor tomatoes Seedlings and established herb plants Research and choose vegetables and herbs for toppings.
Step by step instructions	Create a circular bed and prepare soil. Plan pizza bed with slices for different crops. Make plant labels. Take cuttings from established herb plants (oregano, rosemary, etc) and establish. Write an instruction sheet for this, describing the process. Plant out hardy tomatoes and peppers. Sow spring onions, rocket, spinach, etc from seed (fast growing crops) Make a poster to advertise pizza day Grow for 6 weeks. Harvest and cook pizza together. Research recipes and write own version.
Evaluation – How did you evaluate it?	Propagating, harvesting or cooking demonstrations for speaking and listening. Professional discussion record, practical task record. Photographs with comments. Pupil voice.

Activity title	AFTER THE RAIN
Group size:	4-5 students
Group age:	14 - 18 years old
Activity duration:	2 weeks
Learning objectives	Field studies skills, water cycle, writing to describe. Writing a news article and conventions. Living and non- living things.
Relation to subjects	English language: grammar, adjectives, writing to describe. Science: observation, recording and reporting data, field studies skills, comparing, predicting, measuring. Water cycle, water capture.
Materials	Observation journal (iPad or paper), news articles on flooding, water cycle video or interactive app. Garden before and after rain. Water catchment devices (butt or improvised containers and surfaces). Rain gauge.
Preparation	Set up water butt on roof if possible. Mark water level. Set up rain gauge and other vessels. Note different surfaces, planted and bare soil, bug hunt and tally.
Step by step instructions	Observe garden on a dry day. Bug hunt and recording of place and species. Observations of surfaces (photographs) and descriptions. Reading measurements on rain gauge, water butt, etc. Research news articles on flooding, causes, impact and prevention. Write own article on flooding of garden and effect. Observe garden after rain. Repeat bug hunt and photographs. Read rain gauge, butt, etc. Observe effects. Research typical rainfall for region in past years. Do a graph to compare, discuss possible reasons for any differences (climate change). How have creatures in garden responded to the rain? How are plants affected? Is there any run off or erosion? Damage? Positive and negative effects. How did water flow through the garden? Where did it puddle? Was it dirty or clean? Can we make better use of the rainfall?
Evaluation – How did you evaluate it?	Article and research marked according to GCSE specification. Discussion and comments on skills and observations.

Activity title	FIBONACCI SEQUENCES IN NATURE
Group size:	4-5 students
Group age:	14 - 18 years old
Activity duration:	1 week
Learning objectives	Understand patterns, recognise and use sequences of numbers, Fibonacci sequences.
Relation to subjects	Maths Art
Materials	Flowering plants (sunflowers, calendula, etc), sticks to build a fence, water containers. IPad: art programme, paper and pens. Wildlife area. Worksheets
Preparation	Explore outdoor space and classify patterns found in flowers and snail shells, etc.
Step by step instructions	Finding patterns in the garden: flowers, ferns, seeds, snail shells, etc. Locating and identifying patterns outside in water and wind. Finding windy and sheltered spots. Photographing flowers and other shapes for later study. Worksheets on Fibonacci spirals, sequences, etc (maths GCSE). Find patterns in photos of flowers and other natural shapes. Design a living fence to act as a windbreak. Collect materials for the fence (dead hedge/ fedge, etc) Create art with these patterns.
Evaluation – How did you evaluate it?	Evidence marked: artwork, design of windbreak, worksheets. Verbal description of sequences as they are counted. Diagrams of flowerheads labelled with numbered sequences

Activity title	**INCLUSIVE EDUCATIONAL GARDEN** (BUILT FLOWER BOXES)
Group size:	From 2 to 8 students
Activity duration:	2 sessions of 2 hours each
Learning objectives	Create an educational garden that can also be used by people with motor disabilities. Together with the students, raised wooden planters will be built and put in the urban community garden. The fact that they are raised will also allow people with physical disabilities and in wheelchairs to work on the planter.
Relation to subjects	Science, chemistry, mathematics, botany, education and social studies
Materials	iPads, raised planters to assemble, soil, various plants, paints, impregnant, brushes
App	iPads used to make research on which plants to put in the given season
Preparation	Together with the students, find the materials to be used and make the research on the plants to be planted in the specific season we are.
Step by step instructions	In the first session of 2 hours, the tubs will be coloured and then an impregnating material will be applied to prevent water from ruining them. On the base of the research on plants done by students (see preparation phase) we will then go with the participants to buy the seedlings. The last step, in the second session, will be to plant the seedlings, also studying which soil to use.
Evaluation	During the debriefing session, we will reflect on: - seasonality of plants - the environment/spaces organisation - tasks division and team work to reach a common product/result - inclusion

Activity title	BOTANICAL PAINTING WORKSHOP WHAT COLOURS SMELL LIKE?
Group size:	5 – 8 youngsters
Group age	11-18 years old
Activity duration:	90 minutes
Learning objectives	In Kandinsky most famous literary work 'The Spiritual in Art', he expounds his theories on the use of colour, intuiting a strong relationship between the work of art and the spiritual dimension. Colour when observed can have two effects on the viewer: a 'physical effect', superficial and based on temporary sensations, determined by the physical perception of the observer of one colour rather than another; or a 'psychic effect' due to the 'spiritual vibration' through which colour reaches the soul. It can be direct or occur by association with the other senses, which is precisely why the psychic effect of colour is determined by its sensitive qualities: 'colour has a smell, a taste, a sound'. Creating the opportunity to connect youngsters with art, colours with/and elements present in nature and their own emotions gives us the chance to make youngsters explore not only a 4D painting experience (thanks to textures, smells, colours and emotions) but to make them aware of issues such as the environment, sustainability and respect for shared places as a common heritage. The aim of this workshop is to create a connection with the natural environment, through a creative dialogue aimed at experimenting with the potential of materials that we normally use in different contexts. From the artistic to the pictorial. The colours used will be naturally extracted from vegetables, roots, vegetables and fruit. The brushes will also be made from elements found in nature: canes, leaves, branches, etc. The botanical painting workshop is designed to be a time and opportunity for experimentation, inclusion and socialisation. It encourages creativity and a greater awareness of sustainability issues and of getting to know and recognise oneself in elements and colours found in nature. This workshop will promote: • interactions • learning to work in groups • communication and social skills creativity and initiative
Relation to subjects	Sciences, Chemistry, Italian, Psychology, Art

Materials	• iPad Pro: in case of research on Internet to deepen the topics or to make pictures/videos • large poster/sheet, containers, fruit and vegetables such as onion skins, tannin-rich plants such as eucalyptus, maples, walnut and chestnut leaves, spices such as curcuma
App	-
Preparation	Choose the vegetables with which to make colours and prepare the 'natural brushes'.
Step by step instructions	All the youngsters taking part in the activity will be in a circle around the poster/ sheet and will be able, with brushes previously made from natural elements, to try painting with the colours obtained from vegetables For example, by crushing red cabbage, obtaining the juice and adding a few drops of lemon, we can obtain fuchsia, or if we add a little bicarbonate we can obtain blue. Red, blue and purple can also be made from the skins of red onions, tomatoes, blackberries or raspberries. Once the collective work is completed, bookmarks will be made from it to distribute to the children.
Evaluation	During the debriefing session, we will reflect with students: • on the value of reusing waste materials to create works of art • emotions and personal perceptions

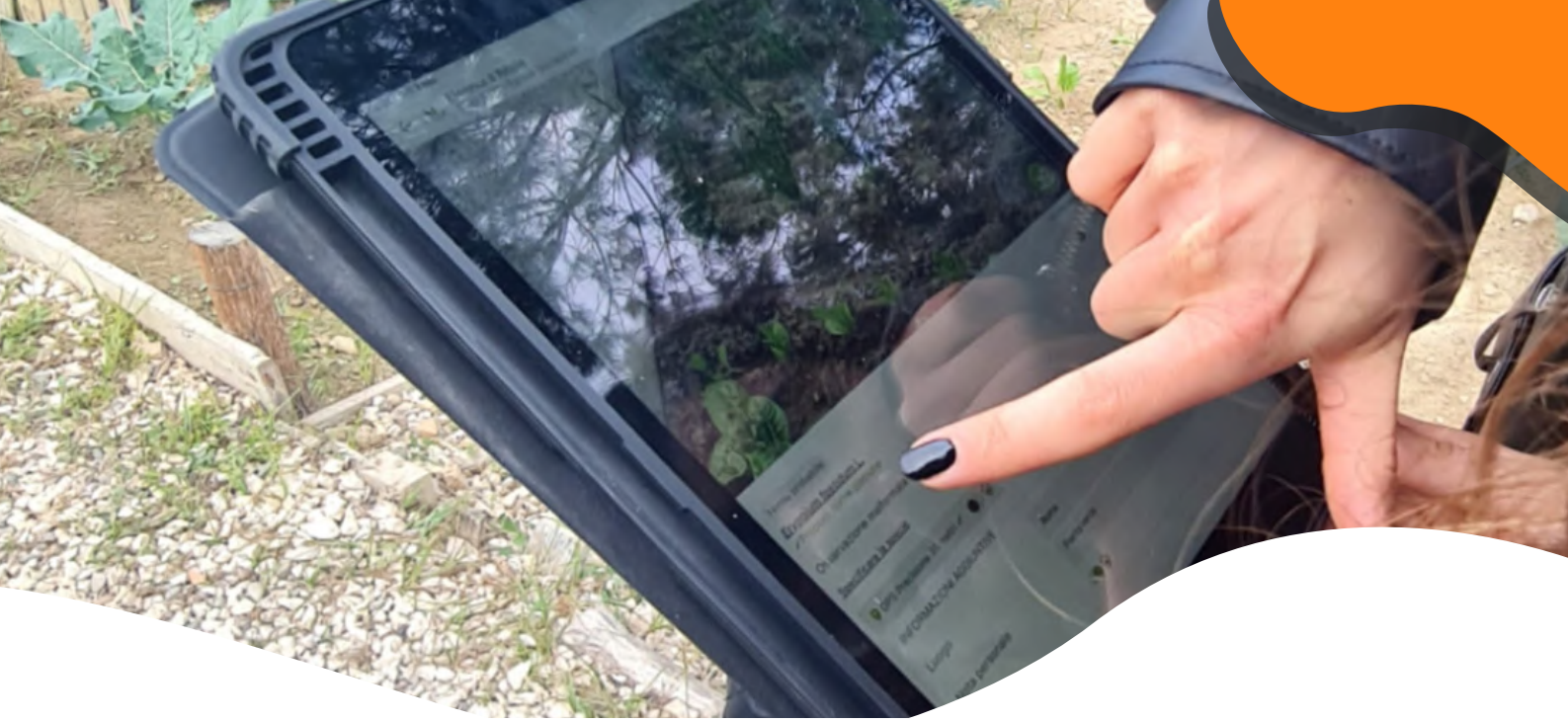
Activity title	CREATING ENERGY: THE VOLTA STACK
Group size:	5 – 8 youngsters
Activity duration:	1h 15 minutes
Learning objectives	Support students to get familiar with the concept of energy by presenting energy sources, conveying their importance for life and scientific progress, paying particular attention to the value of renewable energies, which precisely because of their 'green' nature have deep roots in human evolution and can contribute to a healthy technological evolution precisely because they are free, inexhaustible and environmentally friendly.
Relation to subjects	Physics, Italian, Civics, Science
Materials	• iPad Pro: in case of research on Internet to deepen the topics, to make pictures/videos, to design and collect the known types of energy in the first part of the workshop • 5 cent copper coins • kitchen aluminium discs (coin size) • blotting paper discs (size of coins) • 1 volt led • glass of water and salt • poster or blackboard • markers or chalks
App	-
Preparation	
Step by step instructions	In circle time, initiate a discussion on the definition of energy and the known types of energy, using a visual aid such as a blackboard or poster board or the Ipad. (30 minutes) Present the activity with the following video: https://www.youtube.com/watch?v=aXQWxPNjanY Stack construction: Its name is derived from the 'stack' arrangement, i.e. one on top of the other, of the voltaic elements, the pairs of disks - one copper and the other aluminium - that form it. The metals are not placed in direct contact, but are interspersed with a cloth moistened with acidulated water. The battery we construct is precisely made up of different metals, called electrodes, immersed in an electrolytic solution, i.e. an aqueous solution of salts or acids that allow current to flow because electrically charged particles are present in it. (25 minutes)
Evaluation	During the debriefing session, we will reflect on the value of renewable and non-renewable energies and curiosities will be explored. (20 minutes)

Activity title	VERTICAL GARDEN (SPACE SPICES)
Group size:	10 – 20 youngsters
Group age	11-18 years old
Activity duration:	90 minutes
Learning objectives	The workshop consists of the design and construction of a vertical vegetable garden, taken inspiration by the experience of space cultivation. Indeed, over the past year, scientists and botanists have joined forces to study and experiment with growing plants in space environments, as illustrated by researcher at the Italian space agency Dr Marta del Bianco in Planet Magazine. One of the solutions that has enabled space cultivation is to arrange plants vertically rather than commonly horizontally. The system uses hydroponic to aeroponic techniques to grow plants without the use of soil but by recycling nutrients, which could enable large-scale production in flexible spaces. Objectives of the activity "Vertical Garden" for the students: - learning to work in groups - developing scientific, communication and social skills - promoting creativity and initiative
Relation to subjects	Biology, Natural sciences, Italian, Chemistry, Art
Materials	• iPad Pro: in case of research on Internet to deepen the topics, to choose which plants/seeds to use, to ask the students to make a descriptive text summarising the activity carried out • large semi-rigid plastic bottles (or pvc tubes) • recovered pallets/crates • soil • seeds/plants • water
App	-
Preparation	Together with the students, find the materials to be used and choose the plants to be planted. Design and plan the construction process and arrangement of the plants. Proceed with the realisation.

Materials	• If you use pallet: rub it carefully with sandpaper so that there are no slivers, corners, rough surfaces. Cover the pallet with a layer of tarpaulin. Fill the pallet spaces with soil, pressing down a little. Start planting. Watering • If you use bottles: cut them so that they can be used as pots, make small holes in the bottom to allow water to run through. Assemble them as you like. Fill them with soil by pressing a little and then plant seeds or plants. In both cases, students can decorate the bottles and pallets to their liking.
Evaluation	During the debriefing session, we will reflect on: • The possibility of re-use • The possibility of growing vegetables and greens, in small spaces, for healthy eating at home.

Activity title	SEED BOMBS
Group size:	10
Group age	11-18 years old
Activity duration:	2h
Learning objectives	To understand that plants need various elements (nutrients, sunlight, water) to help them grow
Relation to subjects	Biology, natural sciences
Materials	• A scoop or cup measure between 10ml & 25ml (the larger the measure the more bombs you get! • 5 scoops of peat free compost • A re-purposed washing powder scoops work well! • 1-2 scoops of wildflower seeds • 3 scoops of powdered clay • Water
App	N/A
Preparation	Gather all the material needed Put a tarp on a table
Step by step instructions	In the bowl, mix the dry ingredients together thoroughly. • Slowly add the water little by little until the mix is sticky but not too wet. • Gently roll the mixture into balls about the size of golf balls. • Leave the balls to dry fully somewhere warm or sunny and turn them occasionally so that they dry evenly – Note: Don't dry them on a radiator or with a hairdryer as they will dry too fast and may crack or crumble. When they are fully dry, you can 'plant' your seed balls by throwing them into areas of the flowerbed or garden...then wait and watch your meadow flowers grow. Make a note of any insects that visit!
Evaluation	Self evaluation at the end / Discussion with the youth worker / Gardeniser

Activity title	QUIZZ IN THE GARDEN
Group size:	10
Group age	11-18 years old
Activity duration:	1h
Learning objectives	To know more about the history of the plants, their use
Relation to subjects	Biology, natural sciences, general knowledge, and culture
Materials	iPad Online platform to create quizzes and QR codes
App	N/A
Preparation	Go in the garden and identify the plants. Do some research about their use, their history. Create quizzes and QR codes to link them. Print a booklet
Step by step instructions	Give to the students the booklets. Split them in teams of 2 or 3 according to the number of smartphones and tablets available. Follow them and go team by team to see what they learnt and if they need help. When they did all or most of all the activities, see
Evaluation	Self-evaluation at the end / Discussion with the youth worker / Gardeniser



Other possible APPS:

Feeding the World in 2050 - https://www.journey2050.com/
Journey 2050 takes students on a virtual simulation that explores world food sustainability. Using an inquiry based approach the program encourages students to make decisions and adjust them as they see their impact on society, the environment and the economy at a local and global scale. The students experience the lives of three farm families in Kenya, India, and Canada. As the student interacts with each family they learn the role of best management practices in feeding the world, reducing environmental impacts and in improving social performance through greater access to education, medical care and community infrastructure. This app is especially useful for classroom education.
Cost: Free

Toca Lab: Plants - https://tocaboca.com/app/toca-lab-plants/
Have fun experimenting at each station to see how the plants evolve. Keep experimenting until you've collected all 35 plant characters in the app. Once you've collected a plant, keep experimenting to continue to evolve it! Who says kids can't be scientists? Toca Lab: Plants brings out the budding botanist in everybody!
Cost: $2.99

Ecoliteracy - https://www.ecoliteracy.org/download/starting-soil
An iPad app from the Center for Ecoliteracy and Whole Kids Foundation offers a playful, visually rich way to help kids understand that soil is a living system full of fascinating relationships.
Free

iNaturalist - https://www.inaturalist.org/ helps you identify the plants and animals around you and allows you to connect with over 400,000 scientists and naturalists who can help you learn more about nature. With this app, you can also record and share your observations to share with the community, discover new species, and follow projects of other people about specific places or species.
Cost: Free

Rain Harvest - https://apps.apple.com/us/app/rain-harvest/id322055663
Have you ever wondered how much rain falls on your roof during a typical rain storm? Use this simple rain harvesting calculator to find out. You will be amazed at how much water can be collected from your roof (or any other surface) during even the shortest of rain storms. Why not collect and store this wonderful natural resource and put it to good use later to water your organic garden? Free

Royal Horticulture Society - https://www.rhs.org.uk/rhsgrow
Official app of the Royal Horticulture Society, full of resources, podcast, an access to the previous issues of the catalogue. Some functionalities are free while others are premium.
Other resources and activities are available on the platform, such as:

- Quizzes about birds, cats, rabbits, horses, dogs and guinea pigs
- Animal care lessons
- Organisation of pedagogical community care farm walk
- An ethogram for monitoring rabbit behaviour-body language study
- An health check guide for animals

ONLINE PLATFORM: ARCHITECTURE AND FUNCTIONALITIES

Learning Bubbles Platform is an original online communication platform studied for Learning Bubbles project that allows to manage the logistics of Learning Bubbles, but also individualized learning paths between school, digital educators and gardeners of each urban garden.

We developed 3 platforms in the 3 languages of the Learning Bubbles partnership.
The platform is accessible through the following links:

- https://lbplatform.eu/ English version
- https://lbplatform.fr/ French version
- https://lbplatform.it/ Italian version

The platform is accessible by role as identified by the project as key actors of the pathway: teachers, gardenisers, digital educators and parents. Each role corresponds to specific level of accessibility.

The system consists of several parts, we can sum up as follow:

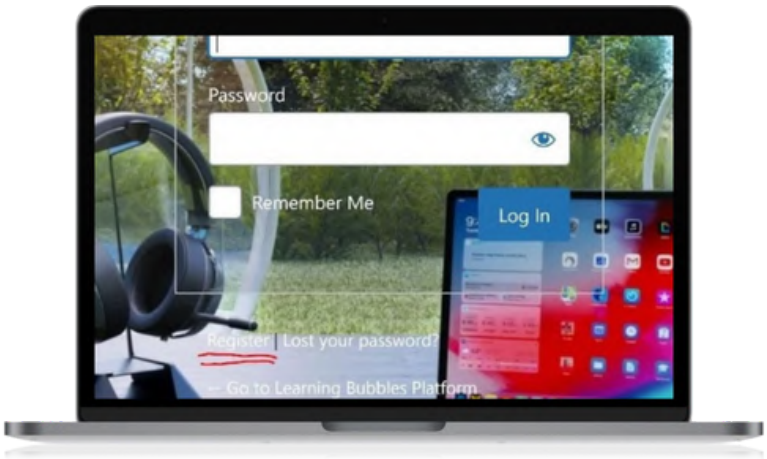
- communication module to be accessed from the website (divided into different roles)
- a booking system for Learning Bubbles

The central part consists of the "Students" section through which it will be necessary to create the individual students and the group associated with them.
Subsequently, the various "actors" must be part of the various groups in order to guarantee access to the exchange of information, teaching materials and useful documentation.

Access to the platform and registration:

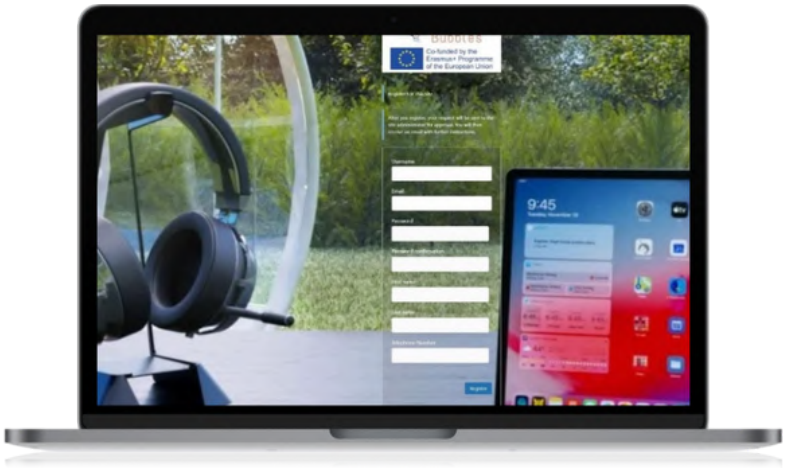
Authentication via username and password will be required.

To register, you will need to click on Register (the system administrator will approve the user, assigning the appropriate role).



When registering, you will need to fill in the following fields:

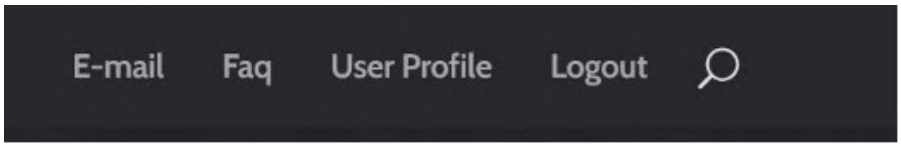
- Username
- Email
- Password
- Password confirmation
- First name
- Last name
- Telephone number



Once logged in, the welcome page will provide an overview of the main features (the tiles available will change according to the role of the user).

We will find an upper menu with the ability to access the following options:

1. Sending of Email,
2. Access to FAQs,
3. User profile
4. Logout.



In the central area, a brief summary of the information relating to the connected user and nine buttons that will allow you to:

1. View the students associated with your profile
2. Book the Learning Bubbles
3. View users currently online
4. Approve new users
5. View and manage all comments that have been posted on student pages
6. Add and manage students
7. View all registered users by their role
8. Add or manage the different Groups
9. Access the page with the Google Forms

Central area

Students

By clicking on the Students button, there will be an alphabetical list of all students (in the case of the administrator) or only those associated with the user.
By clicking on the desired name, the student page will be displayed, with an integrated messaging system, in which is possible to write, attach documents, images, videos or reply to previous messages.
The system is extremely intuitive, with a text editor that will also allow you to change the formatting, embed links or videos.

Going back to the main page (using the browser arrow or the link in the upper logo) you can always go back to all the features.

Booking

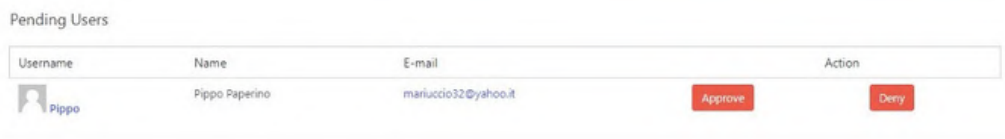
Through the Booking button, you will be able to access a page with a map, in which you can find the various Bubbles available in your area and a calendar system to make the reservation of the desired place and times.
You should enter your email address and name of the students to book. Than click Submit.
The system will send a confirmation by email and will prevent other users from booking the same Bubble at the same time.
The Booking button, located on the top right, will allow the verification of all bookings made.

Users online

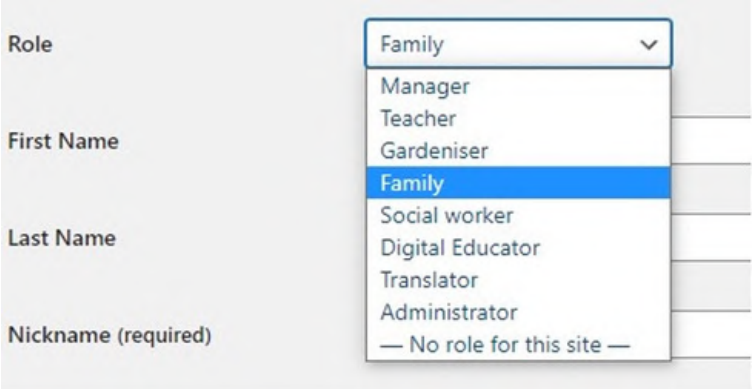
Using the Users online button, a page will appear with the list of all registered users, who are currently connected to the Learning Bubbles system.

New user

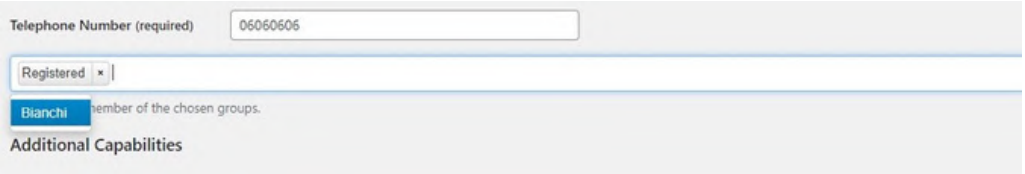
Using the New user tool, it is possible to view the users who have registered on the site and are awaiting approval.
There will be Pending Users, Approved Users, Denied Users.
It is advisable to assign the role to the user at the same time as approval.
Just click on the Username (in the example "Pippo")



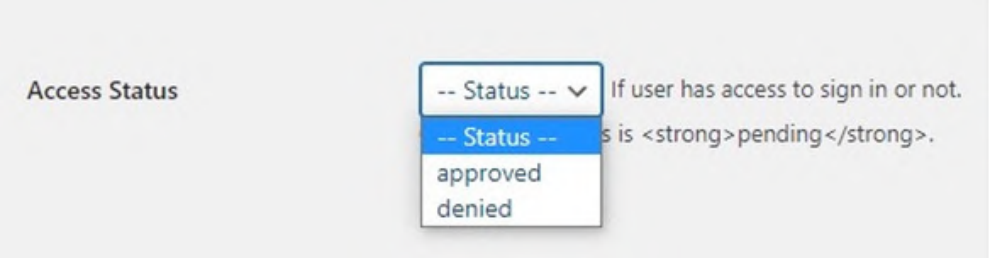
It is very important at this stage to select the user's role from the various available.



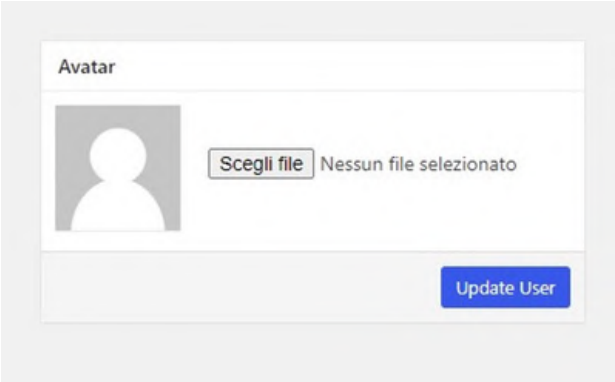
Going down on the page, it is advisable to also assign the group (corresponding to each student) to which it belongs among those available.
In the following example there are only two Groups (Registered and Bianchi). We will see below how to create Groups.
It is advisable to create students and related groups BEFORE approving family members, in order to have the option selectable (although it will always be possible to add this information).



The Access status line, allows you to approve the user.



Using the Update User button (top right) you will confirm changes to register the new User, the role and the related Group in the system.
The user can at any time update their data, insert their own image (without being able to assign roles or groups independently).

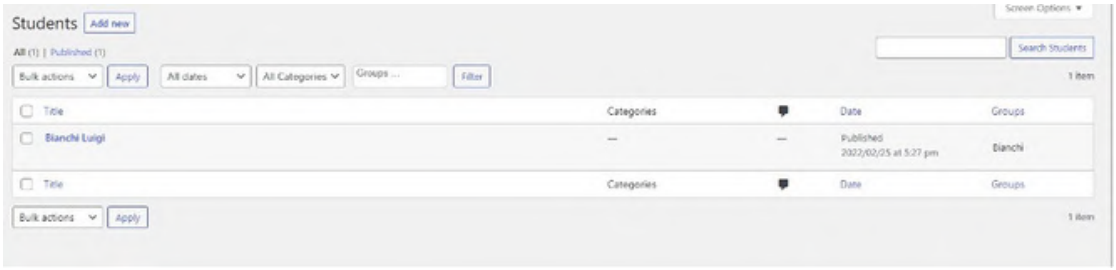


View Comments

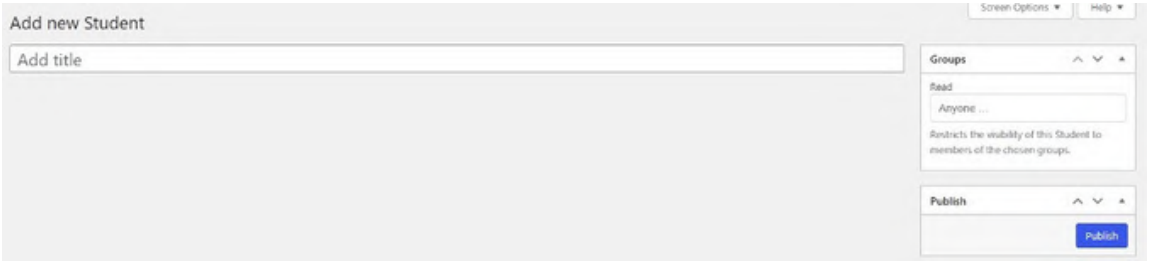
With this tool, you can view all messages and attachments published on student pages (even deny approval or remove them from the system).

Add student

This is one of the most important sections, thanks to which it is possible to add students to the system by clicking on the Add new button (above).



Then, insert the Surname and the Name (in the text field under “Add new Student”).
Please note, it is **very important** to type the group to associate the student in the Groups area (on the right).
If the group has already been created, it will appear by typing the first letters, alternatively, you can enter the name to be attributed (typically the surname) to be able to create it at the same time as the creation of the student.



Click the Publish button to confirm.

Users by role

In this window you can view a list of all users currently registered in the system, with their membership role, username and email.

Manage groups

Thanks to this function, it is possible to view all the groups and insert new ones if the Student has not been created at the same time (recommended procedure).
Simply click on "New Group", enter the name to be attributed (typically the surname) and confirm with the Add button.
You will not need to enter any other information.

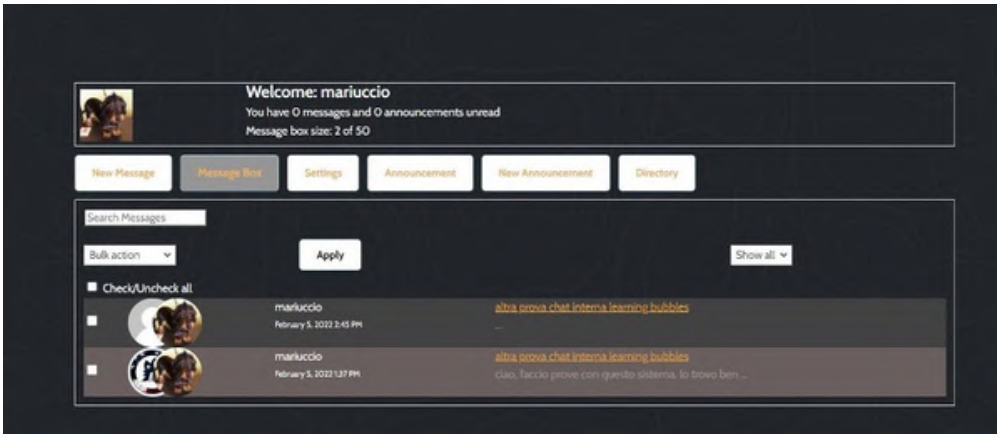
Google Forms

It is a link to a page dedicated to hosting the Google Forms for the evaluation of the activities in which students are involved within the Learning Bubbles pathway.

Top menu

E-mail

It is nothing more than an additional messaging system, but available to all users (unlike the Student page system, which is reserved for group members only)



FAQ

In this section you will find all the most frequently asked questions and answers.

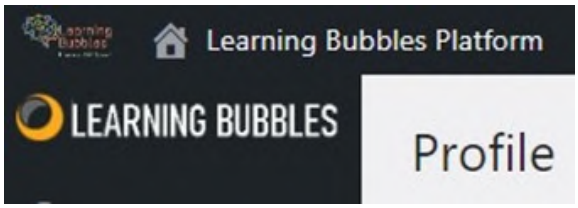
User Profile

In the User Profile section, it provides the registered user with the ability to update their personal data or, by accessing the “Manage all details (advanced options)” section, also to insert an image or an avatar (see Image number 11).

Please remember:

- First of all create the Student (inserting first the surname then the name) and the group to which it is pertinent (typically it will be the surname), only after this step, approve the family members and associate the other roles (as seen in the Add student section).

- As requested, once approved. only at the first login all users will be directed to the profile page to complete their personal information and insert their own image or avatar. To proceed to the website, please click first on “Update profile” and then the upper left link (as shown below).



DIGITAL DATA SECURITY PROTOCOL TO APPLY

Learning Bubbles is a project whose main target groups are students, usually in middle or high schools. Therefore, the nature of the data is an even more sensitive topic since we are dealing with end-users that are minors. These data are dealt by adults, whether they are school personals, urban or community garden staff and volunteers, or non-formal organizations such as the main partners of the project. A specific protocol needs to be ensured at two levels: on one side for the nature of the data themselves, and on the other side regarding who will have access to these data in terms of persons included in the project organizations and to protect them from maleficent intentions.

This is even more important as an internet access is needed to allow the students to use the applications, the teachers, the gardenisers, the educators to digital to use the online communication platform between all stakeholders.
When using the iPads or any device allowing internet connections, three options will be possible:

- Access through an outside Wi-Fi network
- Access through a connection sharing from one of the iPads equipped of a Sim card
- Access through individual connections, each iPad being equipped with its own Sim card

In terms of digital data security, the first option is the less safe as it is using an outside connection access. It needs to be secure using the WPA3 protocol, as are most of the Wi-Fi network nowadays. But it needs a specific focus, while community gardens have sometimes area where the Wi-Fi connection can be low if the space is far from the modem.

The last two options allow the educators to digital to activate the internet connection when they decide so the data shared or exchanged stay in the project. The third one is the more secure as there is no data shared between devices. These two options have the advantage that they don't depend on the Wi-Fi networks of the gardens, that are sometimes open networks for all users, and avoid "white" areas without internet.

The data to be collected

The data collected within Learning Bubbles were collected for two main reasons: for the implementation itself (communication system and use of the different applications that can need the creation of an account) and for the evaluation itself: time spent, nature of the exchanges, between which actors, etc. A series of quantitative and qualitative criteria were established through the work of the partners and the University UC LEUVEN-LIMBURG (UCLL – Belgium), the coordinator of the evaluation.

GDPR Regulations

In terms of data and respect of GDPR rules, the most important question to answer was for us: what data do we need to collect? And who will have access to these data? Indeed, we needed to define what is necessary to collect or not. For that, the protocols are very specific: it is not enough to say that the data will be “useful”. The nature of the data collected depends on the activities implemented.

As the participants are underage, the consent of the parents is needed even if they already authorized the partner schools to take photos and videos of their children. We included the image rights in the learning agreement available in the last section of the present document.

To answer to all these questions, we developed 2 protocols: one on how the platform collects and processes the data, the other, even more sensitive, about how all the stakeholders have to handle all the personal information. Regarding the latter, the use of the platform includes a charter.

The II 901, the reference text governing the protection of sensitive information systems in France, gives this definition of sensitive information: “Sensitive information is information whose disclosure to unauthorized persons, alteration or unavailability could undermine the achievement of the objectives of the entities that use it.”

This definition is deliberately very open: it is up to each entity to identify the sensitive information for which it is responsible and to assess, for each one, what the security needs are. In this definition, sensitive information can have protection needs in terms of confidentiality, integrity, or availability. GDPR regulations are the framework of these recommendations.

According to the GDPR, the organization coordinating the Learning Bubbles pathway in each project country, that have a manager role at each national level, have a data protection officer. Their job is to be responsible of the management of all the personal data and the official contact to any request from the people who did provide these data. Within each partner organization of the project, it will usually be its legal representative whose contact details will be included in the learning agreement.

Internal protection of the data

First, the data needs to be protected internally: we need to prevent any leak or access to the sensitive information shared on the platform, given that the youngsters are, for almost all of them, if not all of them, minors. To this end, we need to answer to the question of who will have access to the data and how, because youth workers, educators are not always trained in this specific field. Therefore, the securing will be done beforehand, limiting the access to the data on a need-to-know basis. Within the platform, the data are compartmentalized with a limited access. The coordinating organizations will be the only ones to have to the data of their country. The only organization having access to all data was UCLL as they oversee the impact study at the European level.

Moreover we've chosen to use Apple iPad's for the security police of Apple, applied to educative context.

Various functionalities are accessible on the iPad to ensure the protection of the data used, with the regular protocols developed by Apple:
- Password requirement to access to the data available in the iPad
- Possibility to insert a Sim card so the internet connection does not need access to an outside network
- Disk encryption possible by FileVault
- Restrictions to manage devices, enroll them or restrict their access to data
- Lost mode if the iPad cannot be found
- Remote lock or wipe to ensure that lost devices don't become liabilities or represent risk and security threats
- Possibility to give to an iPad the functions of an administrator to manage via an app the other iPads

We also want to underline the possibility of creating multiple sessions within the iPads: if, for the need of activities, the youngsters need to store files or personal data, they can create their own space accessible through an ID and a password of their choice. This way, the other students using the iPad won't have access to it.

Despite all these protections, the students will be made aware of the rule always applied when using a public material or Wi-Fi network: always anticipate the worst-case scenario that the data could be leaked or seen by other users, so don't include or share data that you don't want to be seen by other people.

Wi-Fi network protections

The data need also to be protected from external interferences, whether these interferences are accidental or intentional. This aspect is included, as the internal protection of the data, in the technical development of the communication platform as well as during the implementation. Some very important topics are for example the question of the security of the Wi-Fi networks. Indeed, for example, according to the French national agency for information systems security of information systems, the mere presence of Wi-Fi technology in a terminal or equipment may be enough to make it to present security risks. One of the first rules is that the password of the Wi-Fi network used for the activities should have numbers, letters and special characters to avoid any potential hacking, even if the risks are very minimal.

The definition of a security policy for a Wi-Fi network is a complex but an essential operation for an organization implementing this technology. The security and robustness of a Wi-Fi network and the hardware supporting this technology generally depend on:

- the accessibility of the network, i.e., the range of the electromagnetic signals that propagate the Wi-Fi signal
- the authentication mechanisms used to identify network users uniquely and securely
- cryptographic mechanisms implemented to protect wireless communications, which are often derived from authentication mechanisms
- mechanisms for the administration and supervision of the network access points and terminals using the network
- Other Wi-Fi access point configuration elements.

It is recommended to use WPA3 as security standard to ensure the safety of the data.
WPA started out as a simple enhancement of the previous WEP protocol, but the protocol has been expanded over the years. WPA2 was developed in parallel to further increase the level of protection of WiFi networks. It replaced the first version of WPA in 2006, 3 years after the appearance of WPA.
WPA2 has since become the standard in terms of WiFi network security. However, flaws still exist like Krack, a global flaw in WPA2 encrypted WiFi detected in October 2017.

For this reason, the Wi-Fi Alliance recently announced the validation of a new version of the security protocol, WPA3, which will greatly reduce the risks of a network's exposure to attacks and consequently increase user security, which has become a major issue at a time when cyberattacks are becoming commonplace.
Accessible by any online device, the Learning Bubble platform is protected by the SSL protocol, as shown by the presence of the lock on the left of the website address in the web browsers. Using https, it will protect the content of the communication through an end-to-end encryption. The risks of hacking are always possible but minimal.

IT charter on the use of the communication system

In this last section of the chapter, we present a proposition of charter template to be signed by the different stakeholders using the communication platform and devices used during the implementation of the activities. It includes the way information is accessed and the rules of good conduct in the use of the system.

Charter

Preamble

This charter defines the rules relating to the use and security of the resources, such as the communication platform and devices used during the implementation of the activities, developed or included as part of the Learning Bubbles project that the user undertakes to respect,. The following rules aim to be shared by all Users in a climate of mutual trust.

It is indeed necessary to make Users responsible for the consequences of their actions that may entail their personal responsibility but also that of partner organizations in the context of the use of the systems made available to them.

"The User" refers to all persons authorized to use the means and information systems.

The "Information Systems" cover the communication platform (with all its functionalities) and all the devices, applications, used during the implementation of the activities within a Learning Bubbles pathway.

This charter applies to all Users of the Information Systems.

It is recalled that the use of the Information Systems must be carried out exclusively for pedagogical or research purposes.

1. Access to the information systems

The right of access is nominative, personal and non-transferable.
The use of computer resources and the communication system is limited to the activities proposed in the Learning Bubbles project.
The use of the information system in a private capacity must be non-profit-making and reasonable, both in its duration and frequency.

The User is informed under these conditions that any access code communicated to him constitutes a security measure intended to limit any malicious or abusive use of the Information Systems.

In any case, each User must:

- comply with all security instructions and recommendations relating to the management and retention of access codes,
- keep his access account strictly confidential and not to disclose it to a third party,
- not configure any software application made available so that it retains access codes,
- not leave open access to any element of the Information Systems that would be made available to it and not to disable any mechanism for locking a session or re-entering a code in order to be able to use the said Information System,
- lock access to the communication platform in case of absence.

2. Use of the information systems

2.1 Compliance with the information systems by the user

The User:

- refrains from accessing or attempting to access information system resources for which it has not been authorized;
- undertakes not to install, download or use any hardware or software that has not been previously validated by a manager or facilitator.

The User also acknowledges that he is prohibited from installing, downloading or using on the Information Systems or any of its components any software solution whose license fees have not been previously paid.

Finally, the User acknowledges that the free use of certain software does not exclude the application of copyright and therefore refrains from installing, downloading or using on the Information Systems or one of its components any software solution that has not been previously accepted

2.2. Rules of good conduct in the use of the information systems

2.2.1 General provisions

Each User undertakes to comply with the following rules and in particular not to intentionally carry out any operation or manoeuvre that would result in:

- slow down data exchanges
- to broadcast on the electronic network of the Information Systems a virus or any other malicious program;
- to carry out any manoeuvre which would constitute an infringement of an automated processing system.

Likewise, it undertakes not to:

- present themselves on the electronic network of the Information Systems under a false identity or under the identity of another;
- exploit an account of another User;
- upload, store, transfer or disseminate any document, information or file contrary to the law or morality (possession, dissemination, export of pedophile or pornographic images or the dissemination of racist or anti-Semitic content) or in violation of intellectual property rights;
- adopt a behavior contrary to the provisions relating to the Data Protection Act;

The User ensures respect for the confidentiality of the information in his possession. Under these conditions, he undertakes to ensure compliance with legislation relating to intellectual property rights and the secrecy of correspondence and more generally to personal data.

Finally, the User undertakes to ensure the confidentiality of the personal data in his possession and more particularly when they are recorded on an external medium.

2.2 Internet access

The Internet is a working tool open to pedagogical, administrative, and professional uses. If a private residual use can be tolerated, it is recalled that the connections established through the computer tool made available are presumed to take place within the framework of the activities of the Learning Bubbles project.

We keep the right to filter or prohibit access to certain sites, to carry out a priori or a posteriori control of the sites visited and the corresponding access times.

Any download or copy of files (including sounds, images, software, online courses...) on the Internet or locally must be done in compliance with intellectual property rights.

2.2.2 Communication platform

The consortium is setting up a communication platform for teachers, youth workers, gardenisers and families.

General Principles

Any user is responsible for the use he makes of the communication platform and the tools.
All users must respect the rules and procedures put in place for access to the educational resources made available to them.
All users are responsible for the durability of their files and the integrity of their workspace.

Any user undertakes to comply with the rules of computer ethics and in particular not to intentionally carry out operations with the aim of:

- to hide one's true identity, to impersonate others, to appropriate the password of another user, to set up a program to bypass security;
- to install and use software for purposes not in accordance with the uses devolved to the project, to use accounts other than those to which it has legitimate access, to access the data of others without the express consent of the holders even if this data was not explicitly protected.

Respect for the right to property

The platform respects intellectual property rights and Users must respect them just as much. The legislation prohibits any User from copying, reproducing all or part, transforming or reusing educational resources made available on the platform for any purpose whatsoever. The resources may under no circumstances be transmitted by a user to a third party, free of charge or for a fee.

It is expressly forbidden to transmit via the communication platform, illegal documents, threats, defamations, obscenities, or other contraries to the law.

The User undertakes not to carry out operations that may adversely affect the operation of the communication platform.

Users should refrain from any attempt to intercept private communications, whether e-mail or direct dialogue.

Content of the information

Information disseminated through the networks must not infringe on the privacy or image of others, contravene the laws on intellectual, literary and artistic property, and glorify racism, anti-Semitism and xenophobia.

Access to the communication platform and Security

The right of access is limited to activities in accordance with the missions of the platform. The right of access is temporary, it is withdrawn if the quality of the user no longer justifies it. It may also be removed if a User's behavior is no longer compatible with the rules set out in these Terms of Use.

Each user of the communication platform must follow these guidelines:

- choose a secure and secret password;
- never give your password to a third party;
- change your password regularly;
- Do not leave your workstation leaving a session in progress.
- never lend your account;
- follow the recommendations provided by the administrators of the communication platform.

The User is responsible for the management and storage of usernames and passwords, and remains solely responsible for their use.

The Learning Bubbles consortium cannot be held responsible for any fraudulent use of the user's username and password.

The user will inform without delay his national referent within the consortium of any fraudulent use of which he is aware.

Any administrator of the platform is required to enforce the terms of use.
Users can ask administrators for help in enforcing their rights.

The security of the information systems made available to it requires the User:

- to comply with security instructions, in particular the rules relating to the management of access codes; each user is responsible for the use made of it,
- to keep his (or her) access codes strictly confidential and not to disclose them to a third party;
- to respect the management of access, in particular not to use the access codes of another user, nor to seek to know them;
- to be careful not to leave their workstations freely accessible.

The User must notify his referent as soon as possible of any malfunction found or any anomaly discovered such as an intrusion into the information system, etc. It also notifies its manager or hierarchy of any possibility of access to a resource that does not correspond to its authorization.

TO COMMIT THE LOCAL EDUCATING COMMUNITY

One of the key of success for the implementation of Learning Bubbles is the commitment of the local community. This engagement takes the form of a learning agreement to be set between the student, the parents, the teacher, the gardenisers and the educator. This contract sets the frame of participation and the rights and responsibilities of each part to ensure the smooth running of the participation of the project. The learning agreement can include the different parties: tasks, rights, and responsibilities; quality of commitment; nature of support provided; personal details of the student and contact details of the different parties; logistics and practical arrangements.

To understand the different roles within the project implementation, we will focus on the different roles before presenting the general template of the learning agreement, translated by each partner in their language and that can be adapted according to the countries: for example, in some countries, the functions of the teacher, educator to digital or Gardeniser can overlap if some specific persons happen to have the competences.

The role of the teacher

The teachers are the best persons to identify the needs of the students and the learning objectives of the activities that will be proposed to them within the community gardens and the learning bubbles. This will depend on the specific needs and benefits they see from the project. Indeed, if in some schools the benefits can be seen as the development of the well-being, the self-confidence, therefore general objectives that allow a large spectrum of activities, others might have a very specific objective, for example include the activity in extra-curricular sessions that could allow the students to get credits.

The school presents their needs exchanging with the Gardenisers and the educator to digital, and the discussions help the latter to define, choose or adapt the activities according to their knowledge of the community gardens, their own experience with young people, with non-formal activities etc.

Schools are one of the stakeholders signing the learning agreement through their headmaster. The detailed tasks and responsibilities of the school can be individualized to each country, local context, or even adapted to each personal situation when it applies. Here is their main outline:

- Assess and provide the pedagogical needs of the participants
- Respect of the digital data safety protocol
- Be in contact with the educator to digital to book the sessions within the learning bubbles
- Provide the usual insurance to the students, being an activity integrated in the didactics, even if outside the school
- Put in value the pathway by recognizing it in the frame of the school system (such as school credits...) according to each country rules. I think that here, in the translation, each country can put a more detailed description
- Participate to the evaluation process and impact analysis
- Share with the educative staff all the relevant information about the student involved in the LB piloting
- Use the dedicated platform to communicate with the educative staff and the gardens

The coaching role of the Gardeniser

A Gardeniser is a key organizational role within urban/community gardens, farms and growing spaces that requires a unique combination of skills. A Gardeniser is both a gardener and coordinator for a community garden. Community gardens can enrich academic learning, nurture relationships, and create a positive connection with the community that enhances students' lives outside of school. The Gardeniser can lead outdoor learning experiences using activities that help students gain skills and learn more about themselves, each other and bring a greater connection to their environment.

Community gardens and the Gardenisers that manage community gardens can help schools by inspiring, supporting and empowering teachers, support staff, independent practitioners and volunteers to develop and run a school growing and/ or farming project successfully and sustainably either in the school's grounds or by working closely with community gardens in their area. Gardenisers also often bring together formal and informal learning experiences.

In particular Gardenisers can deliver to schools:

- Strong curriculum links using outdoor lessons and activities.
- Opportunities to discuss environmental issues.
- Increased pupils' sense of responsibility.
- Increased motivation to students and new ways of learning.
- Enhanced school grounds.
- Greater awareness amongst pupils of where their food comes from and healthy eating initiatives.
- Provide inspiration and support to teachers seeking to deliver education through hands-on gardening, cultivation, conservation and animal care.

Gardenisers bring expertise to schools creating open learning spaces for children for play, produce artwork, create music, and focus on academic study. In a traditional school setting children must follow many rules, but in a community garden, children are able to use the space they are learning in in a much wider variety of ways. The community garden is a practical and direct form of education, where children can see the results of their decisions and actions. This learning space helps to build a sense of community amongst children.

There are also challenges working in schools and Gardenisers are well placed to understand and plan for these guiding teachers and support staff on how to manage these challenges. These include:

- Support with good design in the garden.
- Accommodating for school timetables.
- Expertise in easy to grow fruit and vegetables
- Creating wildlife areas
- Understanding and planning for health and safety issues in the garden

Community gardens and Gardenisers can help deliver key academic or land-based learning activities such as:

- Composting
- Conservation
- Crop rotation
- Food growing and cooking
- Fruit trees and orchards
- Lesson planning using the outdoors
- Permaculture
- Seed saving
- Sensory garden
- Animal and livestock keeping
- Sustainability and Wildlife

Gardenisers can work alongside and assist teachers to deliver their learning targets and curriculum in their schools and adapt the work to meet the needs of the individual school. In addition, the kinds of activities that are introduced by Gardenisers to the school mean that carers, parents and other family members can easily get involved with growing, cooking, animal care and maintenance alongside the students.

The role of the coordinating organisations

Within the Learning Bubbles project, the coordinating organizations are the organizations working in the non-formal education field providing the learning bubbles pathway to the schools and community gardens. They provide educators to digital that will be familiar to the communication platform and will assist the Gardenisers or/and the teachers during the non-formal activities taking place within the gardens.

Their role is detailed within the learning agreement with functions that can be adapted, as for each role, to each national context:

- Accompanying the participant to the garden with a digital educator (in some cases, the teachers
- can have the role of the educator to digital) that will guide and mentor them
- Accompanying the different stakeholders along the process and answering to their questions regarding the implementation of the activities
- Providing any relevant information to the school if there are any issues met during the activity
- Providing the administrative and logistical support to the stakeholders involved in the learning agreement

The function of the educators to digital is also to include the responses of the youngsters within the evaluation platform after each session, assisting the work of the Gardenisers and/or the teachers.

The role of the family

As the objectives of the project is to help the youngsters to overcome their own challenges, such as the lack of self-confidence, and given that they are minors, the legal representatives of the youngsters have to sign the learning agreements for them and to accept a set of rules, such as:

- Agree on and respect the terms and conditions of use of the platform
- Participate to the possible preparation meetings
- Communicate with the educative community involved in the project by giving them all necessary information for its implementation and to answer to any question / request sent by the other stakeholders involved

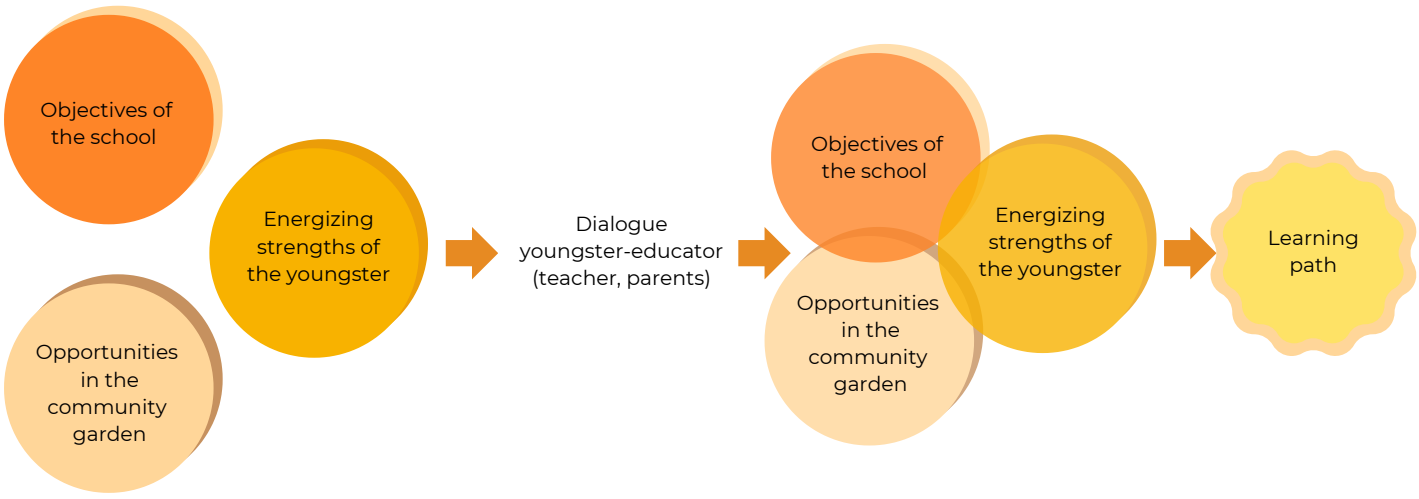
They have access to the platform that will be the privileged communication system with the school and coordinating organization.
The family will sign the agreement in particular with the aim to be officially informed about the Learning Bubbles pathway and objectives, and be part of the educating community supporting the grow of the youngsters.

But more fundamentally, from the pedagogical point of view, to ensure a better understanding of the activities that will be implemented, the schools might need to organize preparation meetings to explain the objectives of the project, and later on, to do a debriefing after the end of the piloting phase to see if they were able to see a change during and after the implementation of the activities. This will be particularly important if the objectives of the youngster's participation is for example to reinforce their self-confidence.

The interaction between the key players

Learning Bubbles is a project based on the synergy between formal (schools), non formal (digital educators and gardenisers) and informal (community) learning. The schools have strict objectives based on their legal framework. Community gardens have an 'offer' of possibilities due to their experience in working in and with a community. The youngsters live in a community and will learn anyway because they are developing and growing.
To guide the youngsters as best as possible we must be careful that these key players are working with and not against each other. The communication platform is an essential prerequisite to make communication and follow up happen. But how is this communication structured on the educational level?

Learning Bubbles wants to support youngsters in their struggle to attend school on a regular basis. The school has its educational objectives that are communicated through the communication platform by the teacher(s). The community gardens together with the digital educators must adjust their learning path to these objectives. But we have a youngster whose motivation to go to school and work for it is probably not high enough. The overall goal of the project is to enhance the inner readiness of the youngsters. In Learning Bubbles we want to see the youngsters as a an almost adults with their specific set of capacities and strengths. Some of these strengths give them energy and make them enthusiast. Others may put them down or cost them energy. A strength is seen as skill that is energizing. To enhance inner readiness we need to focus on their strengths, not on their weaknesses. These strengths are also the catalysts to bring the different ways of learning (formal, informal, non-formal; digital and real life) together. A learning path arises when objectives, opportunities and strengths are put together:



So a learning path is an agreed activity based on:

- The strengths of the youngster
- The objectives of the school
- The opportunities created:
  - Inside the Bubble
  - Outside the Bubble
  - With or in the community

On a regular basis the learning paths are evaluated by the youngsters and the educators by using the evaluation tools developed by UCLL in charge of the impact analysis. This evaluation leads to:

- A continuation of the learning path based on the same strengths
- A new challenge based on the same strengths
- A new dialogue to reassamble strengths, objectives and opportunities

The focus on the energizing aspects of the strengths related to learning path, give the youngsters the opportunity to develop new skills, reach their objectives, develop new (learning) strategies and heighten their inner readiness.

Learning Agreement template

Statement of purpose

This is a learning agreement between (Pistes-Solidaires/Replay Network aps/ Social Farms & Gardens) (Name of the school), (Name of the community Garden) and (Name of the parents/Participant) regarding the participation of (name of the student) in the Learning Bubbles Programme activity at (Community Garden) outlined below.

Project number	**2020-1-IT02-KA226-SCH-095575**
Project title	**LEARNING BUBBLES**

School			
Name			
Street address			
Postcode		City	
Region		Country	
Email		Website	
Telephone			
Teacher in charge of the student pathway			
Family name		First name	
Position/function			
Email			

Coordinating organisation			
Name			
Street address			
Postcode		City	
Region		Country	
Email		Website	
Telephone			
Person in charge of the project			
Family name		First name	
Position/function			
Email			

Urban community garden			
Name			
Street address			
Postcode		City	
Region		Country	
Email		Website	
Telephone			
Person in charge of pathway in the garden			
Family name		First name	
Position/function			
Email			

Legal representative			
Complete Name			
Address			
Postcode		City	
Email		Phone number	

Student			
Complete Name			
Address			
Postcode		City	
Country			
Date of birth			
E-mail		Phone number	

Division of tasks and responsibilities

The **school** agrees to

o The use of the platform according to the rules established within the charter.
o Assess and provide the pedagogical needs of the participant or student.
o Respect of the digital data safety protocol
o Be in contact with the educator to digital to book the sessions within the learning bubbles
o Provide the usual insurance to the students, being an activity integrated in the didactics, even if outside the school
o Put in value the pathway by recognizing it in the frame of the school system (such as school credits...) according to each country rules.
o Participate to the evaluation process and impact analysis
o Share with the educative staff all the relevant information about the student involved in the LB piloting
o Use the dedicated platform to communicate with the educative staff and the gardens
o Ensure that all participants are insured for activities outside of the school

The **coordinating organization** will be responsible, through the educator to digital, for:

o Accompanying the participant to the garden with a digital educator (in some cases, the teachers can have the role of the educator to digital) that will guide and mentor them
o Accompanying the different stakeholders along the process and answering to their questions regarding the implementation of the activities
o Providing any relevant information to the school if there are any problems met during the activity
Providing the administrative and logistical support to the stakeholders involved in the learning agreement

The **Hosting Garden** will be responsible for:

o Ensuring the security and the safety of the facilities (the learning bubbles) and of the technological material required for the implementation of the activities (the tablets)
o Ensuring the safety of the environment of the activities, the garden and all the infrastructures within, with whom the students will be in contact during the workshop sessions
o Participating to the evaluation process and impact analysis

The Student undertakes to

o Agree on and respect the terms and conditions of use of the platform
o Participate to the possible preparation meetings
o Attend each session scheduled within the community garden
o Actively participate to the proposed activities and complete the entire pathway proposed by the school and the digital educator
o Fill the evaluations forms & questionnaire foreseeen
o Respect the legislation in force concerning copyright and the right to privacy.
o Respect the equipment provided for the activity
o Participate in the interviews for evaluation after the learning path
o Respect the infrastructures, staff and volunteers of the garden hosting the Learning Bubbles activities

We have limited place available so it will be important for the participant to attend each session they are allocated. Individual learning outcomes will be identified with them by the school and the digital educators.

The Family undertakes to

o Agree on and respect the terms and conditions of use of the platform
o Participate to the possible preparation meetings
o Communicate with the educative community involved in the project by giving them all necessary information for its implementation and to answer to any question / request sent by the other stakeholders involved

Sessions and activities

The L.B. respond to the need to support students in difficulty, but by focusing not only on learning, but also on the psychological well-being of those who have been severely put in troubles by the pandemic crisis. To guarantee a virtuous path between school and operators (associations and urban gardens), a common working protocol, teaching practices, activities based on high quality digital tools and an innovative platform for dialogue between all the actors involved in the students' educational pathways (teachers, digital educators, gardenisers and families) will be used.

The activities will consist in non-formal activities set in community gardens. They will be set inside and outside the learning bubbles, with the possible participation of other youngsters, staff and volunteers of the gardens. Teachers, in collaboration with the educator to digital, will indicate not only the homework, the study subjects, but also what they want the student to develop, the areas of support needed as well as areas of strength. The activities will involve a direct contact with the gardens, their content and/or the use of new technologies through the tablets that will be made available for the stakeholders.

The educational offer will be completed by educational reinforcement activities using digital methodologies as defined in the pedagogical framework and carried out in the context of the urban community garden. The educational reinforcement activities can be offered both to individuals and to small groups (according to the various health regulations that may be in place) to give space and value to moments of learning and socializing growth.

As mentioned above, the participant commits himself to attend the session to ensure the best implementation and the best results possible.

The sessions will have the following characteristics:

Start date:
End date:
Day of the week:
Time:

Learning objectives

The activities will have the following objective for the participants:

- To develop their social and soft skills
- To raise their self-confidence
- To improve their knowledge of mathematics and the way they can be applied in the daily life and in nature
- To develop their digital skills
- To improve their knowledge in natural science
- To improve their knowledge in physics
- To improve their knowledge in history and geography
- To improve their knowledge in French/English/Italian
- To validate XXXXX credits needed to the validation of XXXXX

GDPR

The data recorded in this agreement will be managed by REPLAY Network aps/PISTES-SOLIDAIRES/SOCIAL FARMS & GARDENS organization according to the European regulation on privacy (GDPR-2016/679) in Italy. The person responsible for data management is the legal representative of REPLAY Network aps/PISTES-SOLIDAIRES/SOCIAL FARMS & GARDENS and the contact email is info@replaynet.eu. The personal data, the sensitive data, the health data and the contact data contained in this document will be used only for the management of the project related to this agreement. They will also be used anonymously, to develop the impact analysis of the activities. This impact study will be realized by the UCLL. The data will be deleted within 5 years from the end of the project, following the requests and procedures of the Erasmus+ program that approved the project. Aggregated data will be shared with the European Commission and the National Agency INDIRE, in Italy. Also these entities adhere to the GDPR and protect the data according to the implementation policies as well as REPLAY Network aps/PISTES-SOLIDAIRES/SOCIAL FARMS & GARDENS

DATA PROCESSING CONSENT

I consent that the data will be processed for the management of the project related to this agreement. (required)

All the parts signing this agreement are aware that the photo and video products might be used according to the project objectives and its communication and dissemination needs.

☐ I consent ☐ I do not consent the partner organizations of the project to publish the photo and video products on the websites dedicated to the project and to contact for any questions regarding data management, in conformity with the "European Regulation 2016/679 concerning the privacy requirements for the treatment and circulation of personal data (GDPR)"

SIGNATURES

The Responsible for the School (headmaster)

_____

The Responsible of the Hosting Garden (legal representative)

_____

The Responsible of the Coordinating organisation (legal representative)

_____

The legal representative of the student / The student

_____

Web platform

www.learningbubbles.eu

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Learning
Bubbles