



eSchool Garden

S C H O O L G A R D E N S
F O R F U T U R E
C I T I Z E N S

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#ESGARDEN

eSchool Garden 



G A R D E N U P !

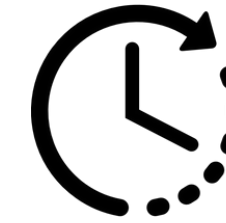
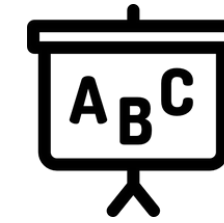
This activity consists of creating a two-dimensional and/or three-dimensional design project, with the intention of creating a vegetable garden and garden in a physical space existing in the outer space of a school. The planning of the garden project aims for a final product that does not yet exist. To this end, research will initially have to be conducted, so that students are made aware of the specific objective of the work to be carried out.

A project is based on five basic principles: problem, research, planning, execution, and final evaluation. Students after taking ownership of the problem, which is the absence of a garden, are compelled to research the simplest and most effective way to solve this problem. They will start by surveying all the school outdoor spaces in order to choose the most appropriate one for this purpose.



GARDEN UP!

#GARDENUP



AGE OF THE STUDENT

This activity is thought for 10 - 12 year- old students.

However, it could also be adapted for any other students from 12 to 16 years old.

SUBJECTS INVOLVED

Math
Science
English
Gardening
Arts and Handicraft
ICT

DURATION

One term.

TIMING

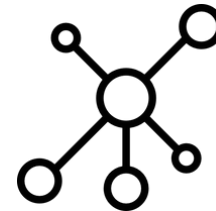
Search and site research
Space measurement and conversion of measures at work scale.
Scale space design.
Project accomplishment, according to its purpose, exploring the possibilities of colours, shapes, and compositions.

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CONTENTS

- Participate/collaborate in project work.
- Recognize the different visual elements of form.
- Construction and planning of spaces at different scales.
- Understand new vocabulary.
- Identify the physiological needs of plants.
- Understanding the concepts of length and perimeter and area.
- Formulating and solving problems.
- Perform measurements and estimates in different situations.



METHODOLOGY

Project Based Learning is the essential methodology of this activity. The students start from the assumption of accomplishing a goal, projecting a garden, defining several stages to succeed. During the process, they also use problem-based learning, and collaborative learning since there are students with special needs. The collaboration, team work, and assistance of teachers and peers throughout the different tasks is essential.



COMPETENCES

- Mutual respect and collaboration.
- Acceptance of difference and diversity.
- Tolerance, solidarity and support.
- Creativity and critical thinking.
- Team working and problem solving.

Garden up!



RELATION WITH THE GARDEN

In garden design, it is essential that students can experience the physical place and understand the relationship between the abstraction of measurements and scales and the reality on the terrain. They have to become aware of the various real variables that will affect their design and assess the viability of their ideas in the garden.

INCLUSION



Students with special needs will be fully included in all group activities. The students will be assembled in heterogeneous groups. Implementing this method will allow students to learn from each other's differences and actively interact with diverse individuals while sharing their unique abilities and interests.

IMPACT



This activity was carried out in an initial phase in the future garden space, with the acquisition of data for the project, as well as the creative component.

Students, by having an increased engagement with the outside world, develop better skills regarding geometry.

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PROGRESS AND FUTURE GOALS

Project-based learning encourages students to visualize the basic concepts, theorems, principles, and the fundamental method involved in solving the problems. It also enables them to make real-life decisions and acquire subjects' knowledge in a more holistic and enduring way. For teachers, it is a way of promoting a collaborative environment, developing curriculum flexibility and articulation, and teamwork. Furthermore, it is an activity that motivates, stimulates, and engages students more easily, making the teaching and learning process meaningful.



RELATION WITH SOCIETY

Students will incorporate ideas into their project that has to do with their experiences. Most have vegetable gardens at home and can take advantage of this knowledge, enriched by talking with their families and incorporate it into their project. They are also directed to think about the use of the garden by people with different disabilities, based on contact with colleagues' cases at school.

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PREVIOUS KNOWLEDGE

What do teachers need?

- Medium-low digital competence
- Being able and feeling good work as a team

What do students need?

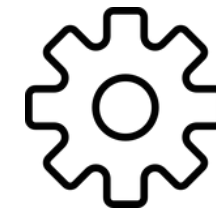
- Autonomy and manual dexterity to use the necessary tools
- Being able to express critical thinking



MULTIMEDIA LINKS

In the following links you will find:

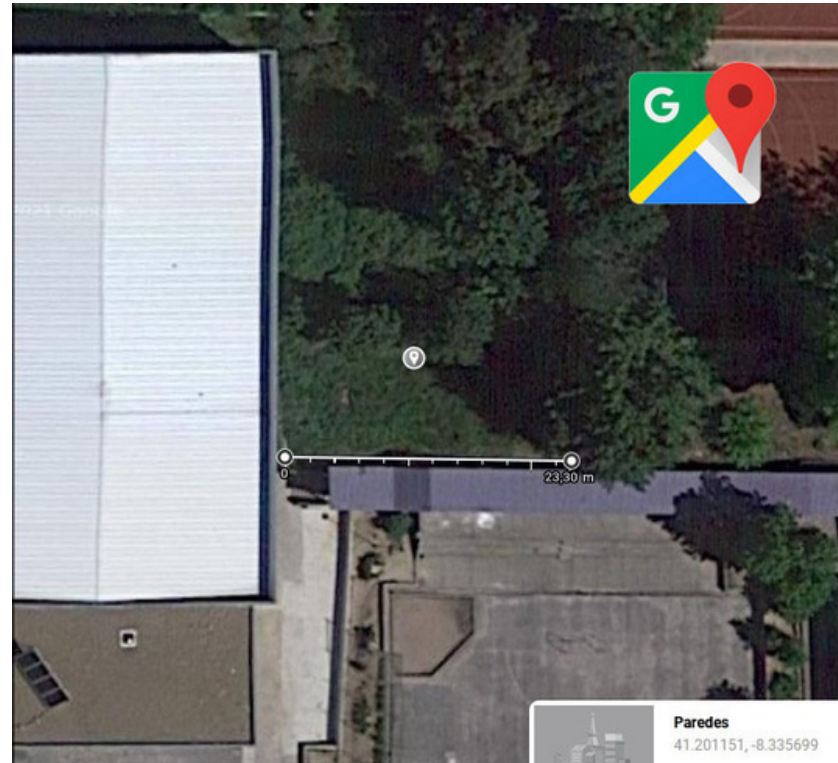
- [Ativities in the English class, related to the _garden: Padlet](#)
- [Site of the eSGarden AVEP project.](#)



MATERIALS

- Computers with internet, and printer
- Google maps to locate the school garden
- Measuring tape, drawing materials and geometric tools, glue, cardboard, cutting tools, paint, brushes
- Camera or mobile devices to take pictures.

PHASE 1: INVESTIGATION/ RESEARCH



Using Google Maps in ICT to find and delimit the space to use for the vegetable garden.



Analysis of the space in gardens' subject, registering the plants and infrastructures, sun exposure, slope, and the type of terrain.

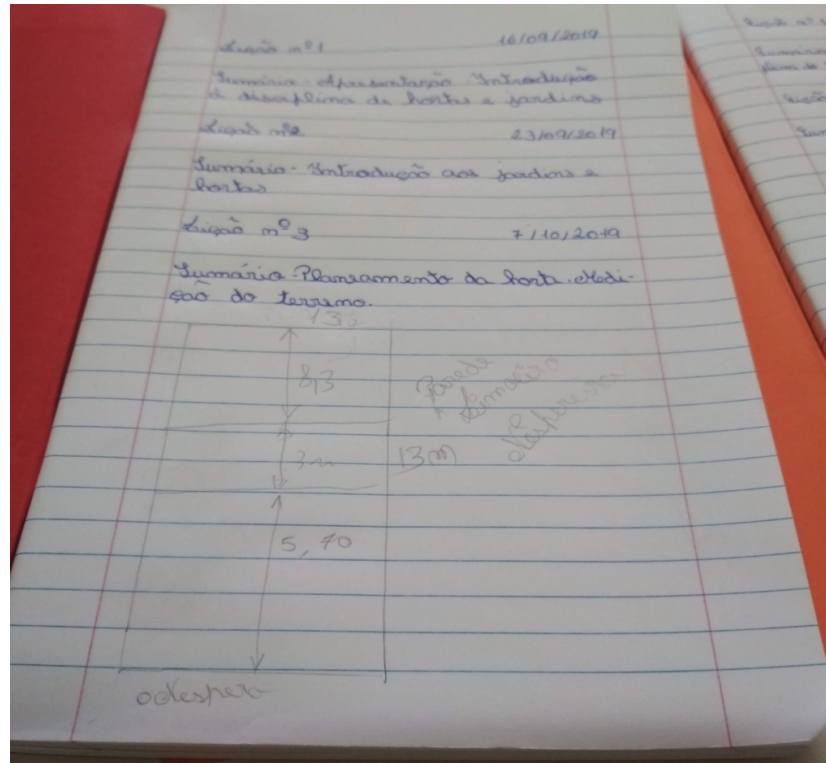


Study visit to a nearby location, Senhora do Salto, known for its biodiversity, which provides knowledge about the ecosystems of our area and inspiration for the garden project.

PHASE 2: SPACE MEASUREMENT AND CONVERSION OF MEASURES AT WORK SCALE.



Measuring the plot using a measuring tape. This action calls for a collaborative work between peers and develops the ability of students to connect theoretical concepts to reality, making learning more significant.

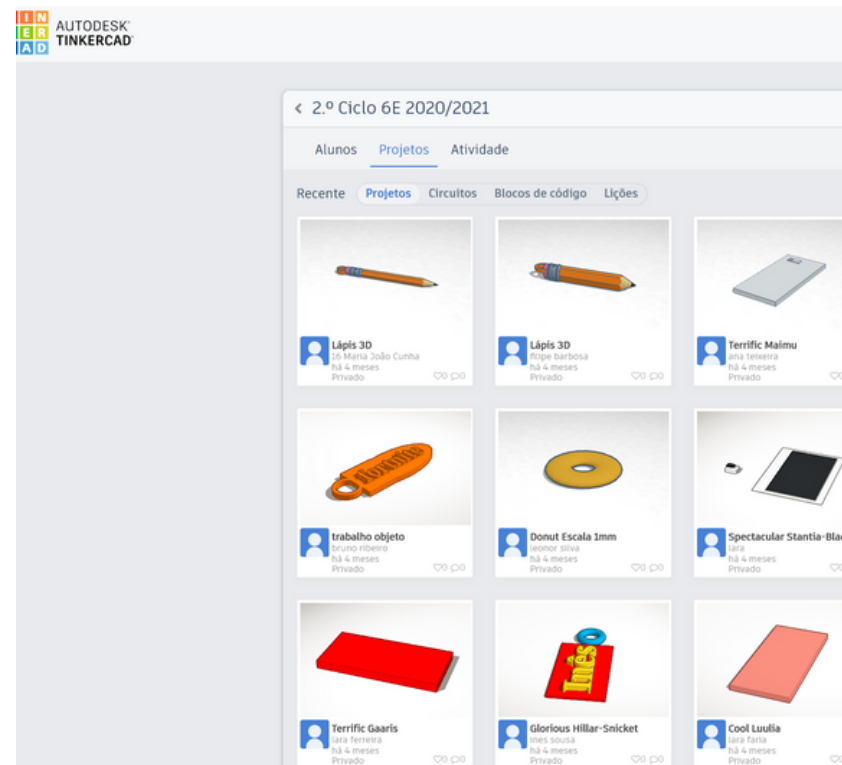


Sketch of the terrain with measures that will be the basis for the construction of the project plan. The number of elements represented are decreased in students with special needs. Group work and the diversity of tasks mobilize different skills in students, which favors inclusion.

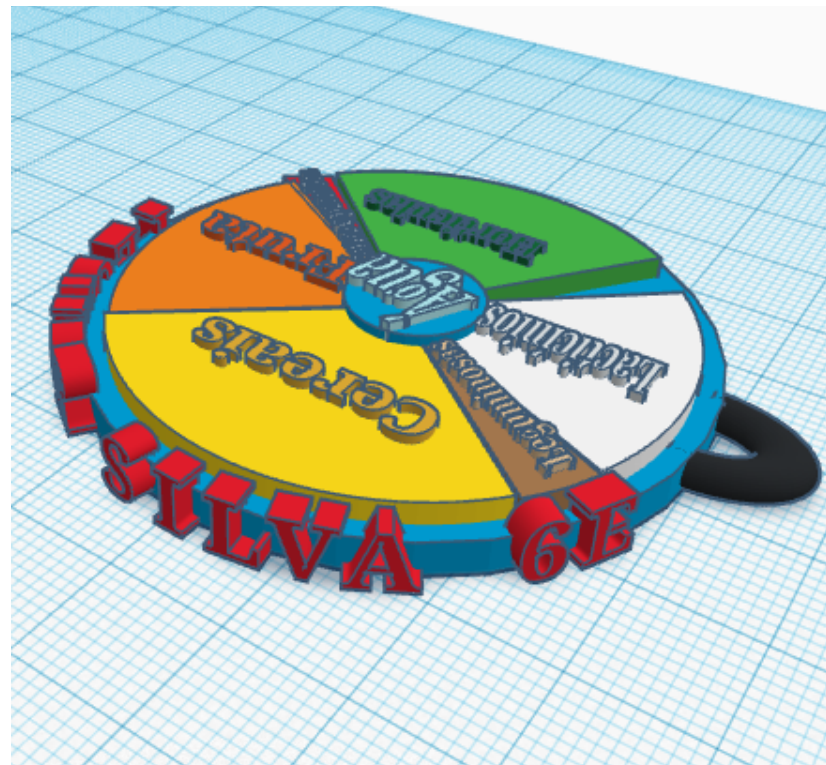


Using basic technical drawing materials in Arts and Crafts class: ruler, square, compass, and protractor. Experiment with different precision tracings.

PHASE 3: SCALE SPACE DESIGN



Using Tinkercad 3D to represent students' objects: pencils, erasers, key chains, mobile phones, in three dimensions using the appropriate scale. The objects were then printed on the 3D printer. This was included in the study of scales in mathematics classes. Scale drawing using the grid.

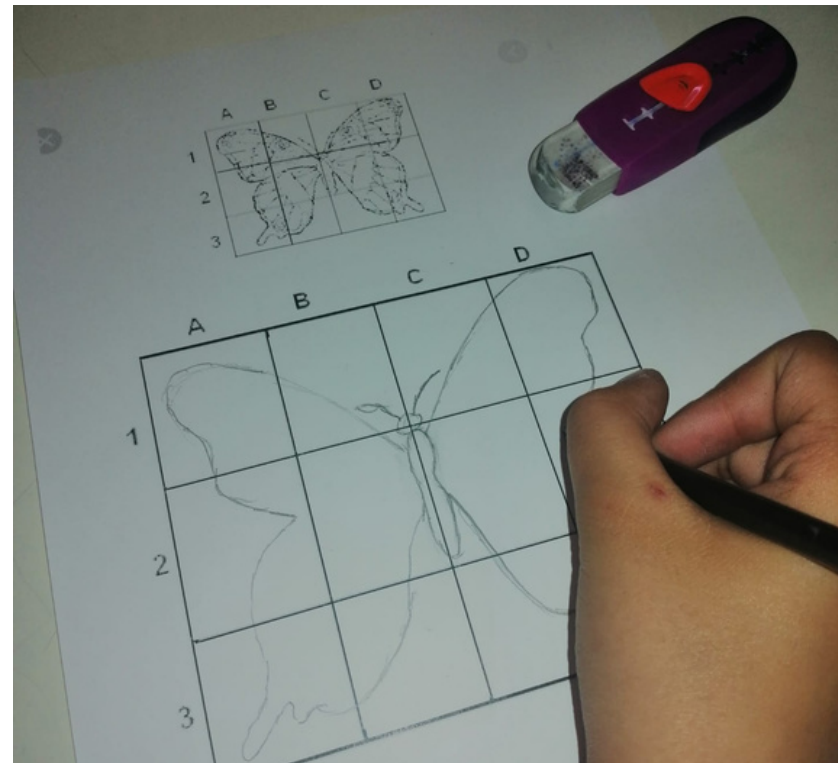


The study of scales and proportions was complemented in science classes with the 3D food wheel design in which students made a three-dimensional food wheel using Tinkercad and 3D printer.

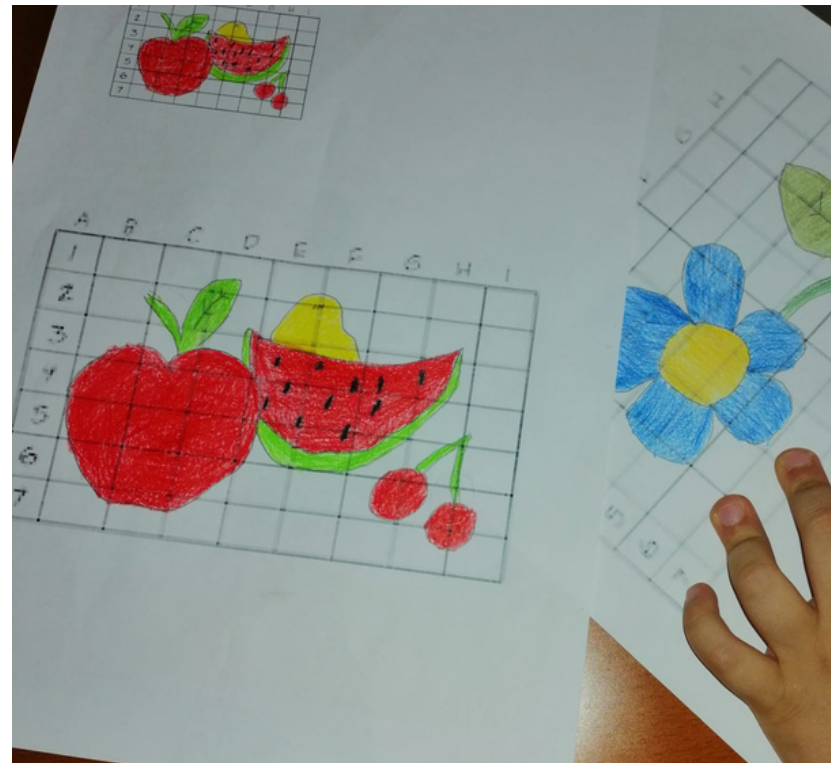


Students produced a real object, a keyring with the food wheel, based on their project. This task using ICT allows for various starting points and degrees of complexity, enabling all students to achieve it, and several learning results to be accomplished.

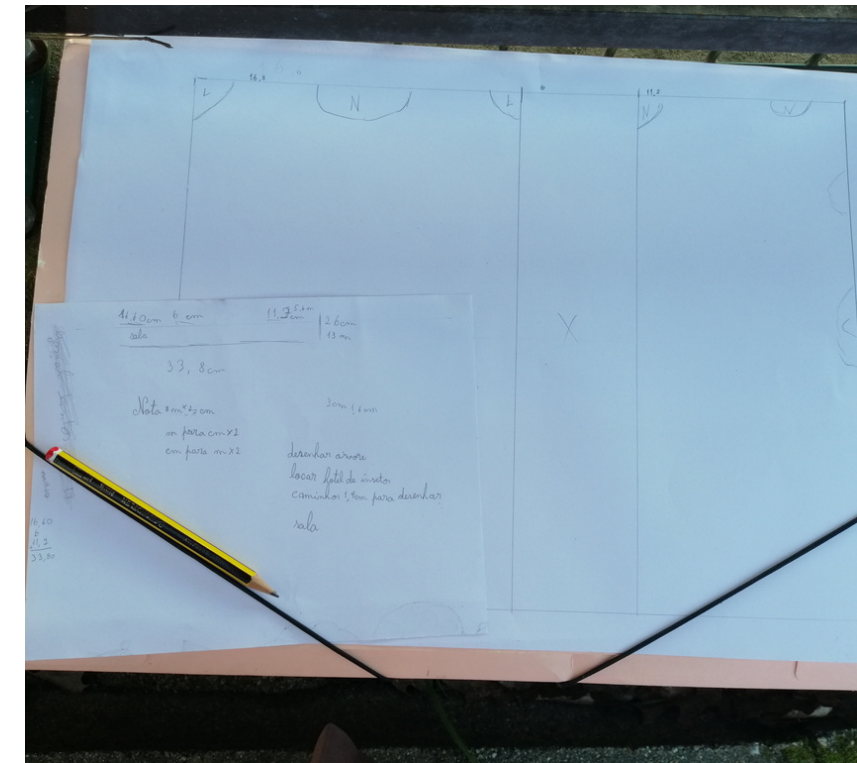
PHASE 3: SCALE SPACE DESIGN



Magnification scale design using the grid in Arts and Crafts class. A different perspective on scales that facilitates learning.



Colors and shapes provide visual stimuli that make the study of this content more attractive.



Transforming the real measures into project drawing measures at a scale of 1:20.

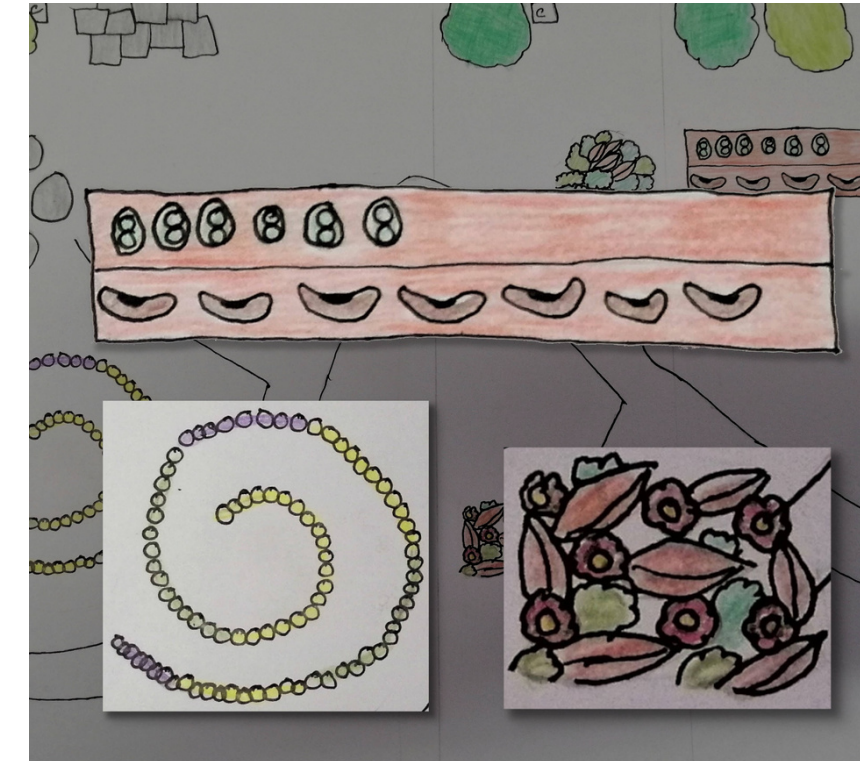
PHASE 4: PROJECT ACCOMPLISHMENT



Getting inspiration from the site of the future school garden, and drawing the elements of the project using a scale model of the plot. Accessibility issues are more easily visualized in the field.

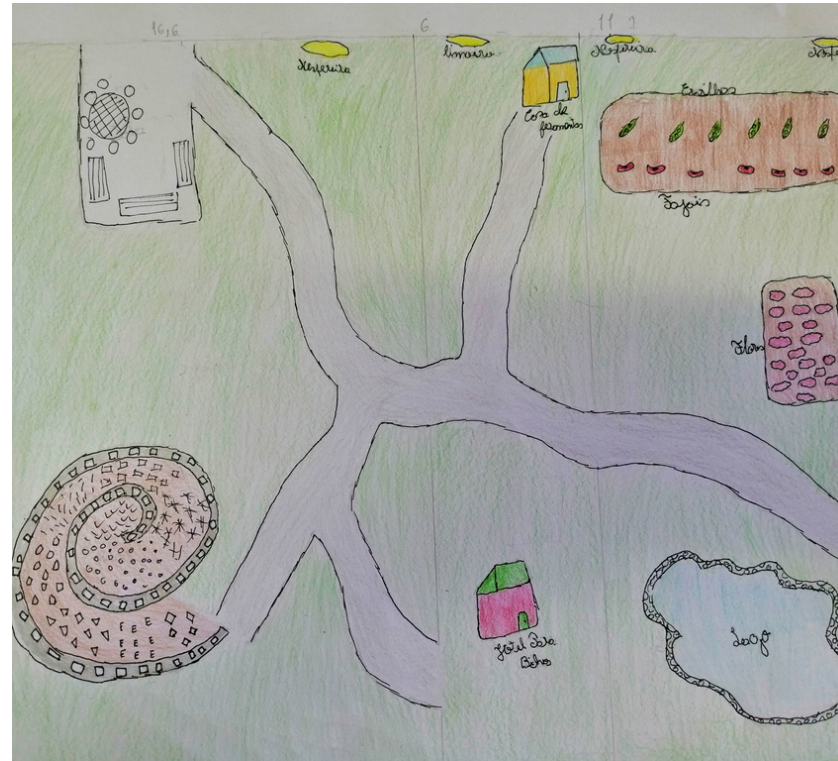


Elaboration of the project according to its purpose, exploring the possibilities of colors, shapes, and compositions.



The students considered the inclusion of furniture and other elements such as a pond, spiral of aromatics, raised beds, paths and delimitation of spaces.

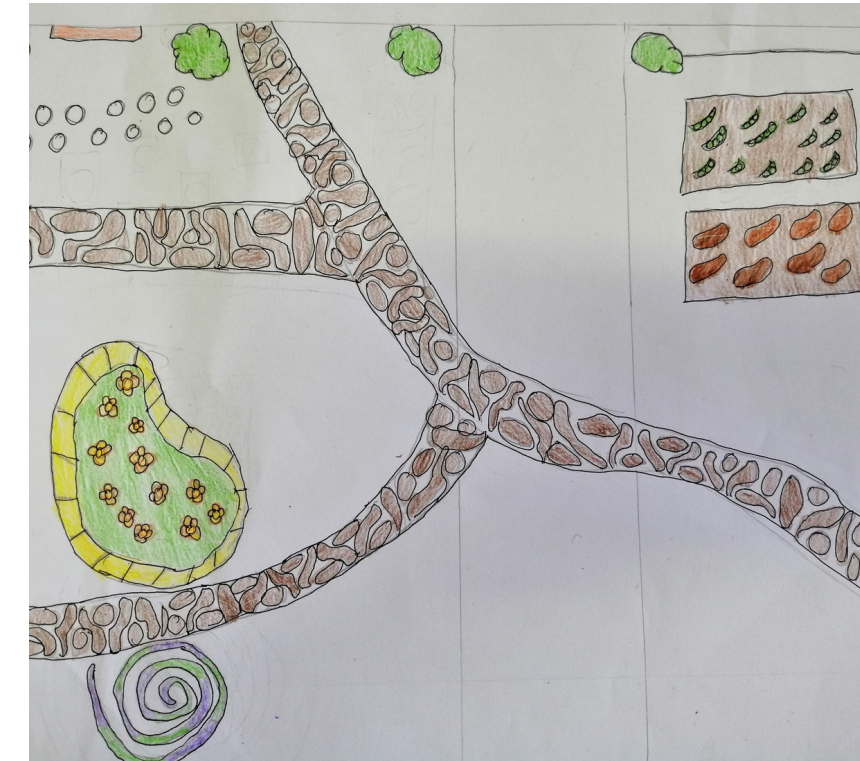
PHASE 4: PROJECT ACCOMPLISHMENT



Prior discussion of the project in the class led to an identical working basis for all. The main elements of the garden planning are present in all finalised projects.



Evaluation of the project goes far beyond artistic and geometric quality and should take into consideration the coherence of the ideas that each student has expressed in his vision for the garden.



Active participation of students in planning and designing the garden that will later be built upon their projects, will enhance their ability to actively intervene in society and the world that surrounds them



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