



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

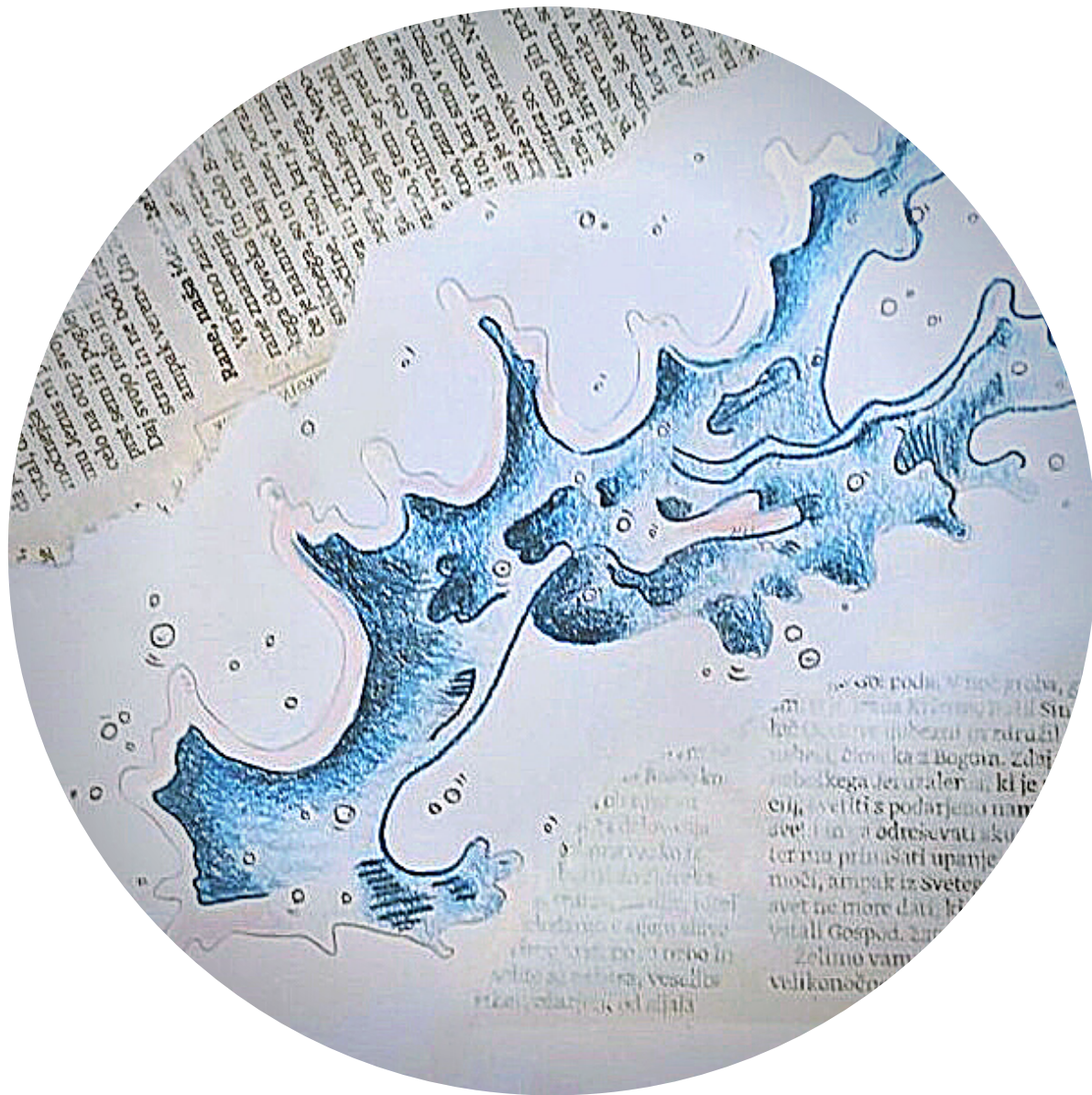
2018-1-ES01-
KA201-050599

#ESGARDEN

eSchool Garden 

W A T E R I S L I F E

The importance of water & its responsible use



Water is essential, not only for our survival but also a necessity for gardening, so it is important for the students to raise awareness about good water management and its sustainability.

The main aim of the activity is to engage the students in learning process about water-related issues not only by hands-on work in the school garden but also at different school subjects to ensure immersion.

Furthermore, blended learning environment allows the students to personalize their learning process towards reaching the curriculum objectives as well as encourages student collaboration and creation of their own original products, ideas and concepts.

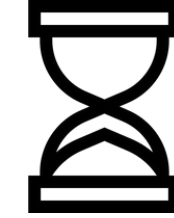
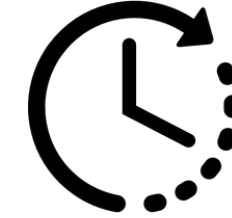
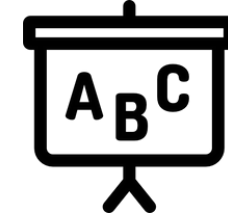


OŠ ŠMARTNO POD
ŠMARNO GORO



WATER IS LIFE

#GARDENSARELIFE



AGE OF THE STUDENT

This activity is thought for 14-15-year-old students.

However, it could also be adapted for any other age group, although contents would need to be adapted.

SUBJECTS INVOLVED

- Biology
- English
- ICT
- Geography

DURATION

The activity is supposed to be carried out during a term.

TIMING

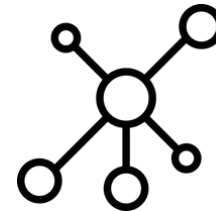
The order in which the activities are carried out is not that important, but it is advisable that they are carried out in the same period of the year which correlates with the gardening period, so the students are able to fully immerse in the topic as well as in the school garden environment.

WATER IS LIFE



CONTENTS

- Exploring water-related issues connected with climate change.
- Exploring certain water properties, water management, natural soil filters of water.
- Simple student-made planting tutorials.
- Production of sketchnotes, posters & collaborative digital contents.
- Multiple ICT knowledges, including the basics of coding, 3D printing & collaboration in digital environment.



METHODOLOGY

The methodology is built around blended learning environment with elements of autonomous learning, collaborative and problem-based learning.



COMPETENCES

- Mutual respect and collaboration, both in personal and digital environments
- Autonomous learning
- Active and democratic participation
- Creativity and critical thinking
- Waste reduction and recycling
- Multilingual communication effectiveness
- Efficient use of natural resources
- Information search and retrieval
- Safety in digital environments
- Creation of digital contents
- Programming

WATER IS LIFE



RELATION WITH THE GARDEN

Through gardening the students raise awareness about good water management and get first-hand experience about the importance of water for plants. They are thus encouraged to think, learn about and search for possible/ original solutions for effective water management.

INCLUSION

Methodologies and digital resources are designed to be beneficial for the students who struggle with graphomotor difficulties and who generally need more time to complete the activities and/ or multiple repetitions. Collaborative approach also allows the students to provide each other with support in learning foreign languages, while work in the school garden provides a relaxed atmosphere for hyperactive students or students who struggle with school-related anxieties to relieve stress while they move outside the classroom.

WATER IS LIFE



IMPACT

The activity is motivational for both students and teachers, since it inter-correlates curricular water-related topics through various school subjects, directly connects the students' learning process with practical hands-on work in the school garden (or e.g. in pots) while exploring motivational and learning benefits of digital and blended learning environments for personalization of the learning process and differentiation.

It encourages collaboration among teachers of different subjects, explores the possibilities & builds foundations for learning environments & teaching practices of the 21st century. It also gives the teachers a unique opportunity to observe the students outside the classroom in informal interactions (while tending the garden). It provides plenty opportunities for situations where collaboration, teamwork and mutual respect can spontaneously grow.



PROGRESS AND FUTURE GOALS

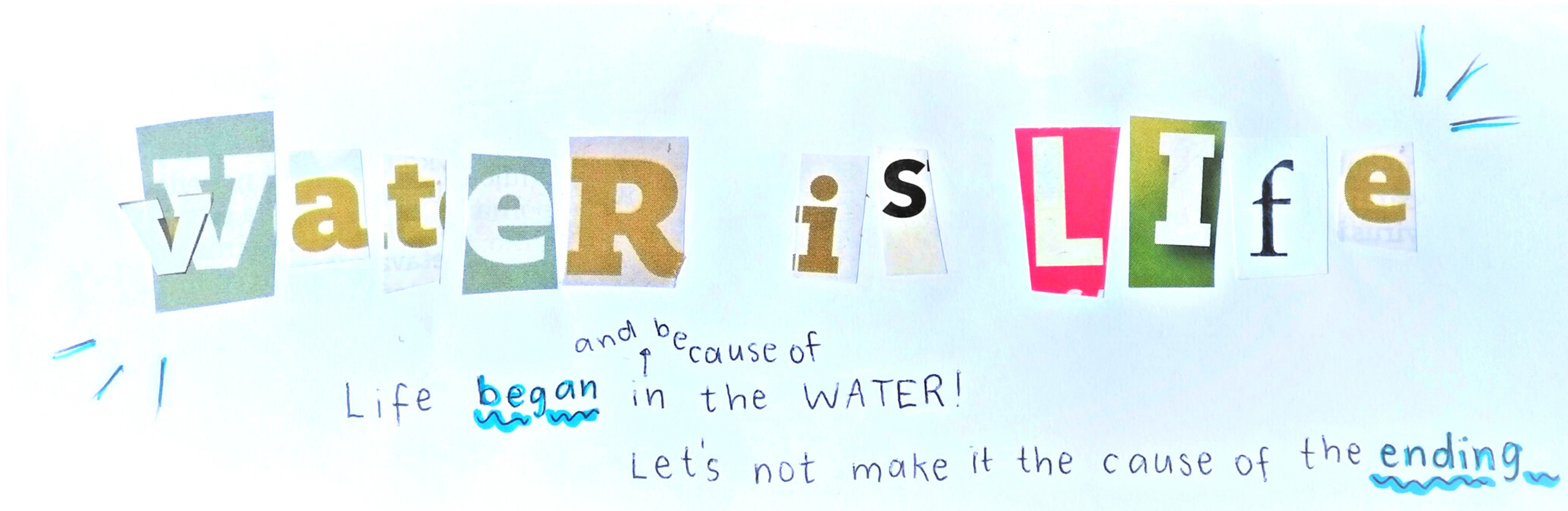
As a follow-up to our Erasmus+ project experience, we intend to keep on exploring the benefits of blended learning as well as the benefits of learning outside the classroom, in the relaxing greenery of the school garden. We also intend to set up "recreational learning breaks" which will include regular visiting & tending the school garden. We also intend to increase coding activities at school for our students.

WATER IS LIFE



RELATION WITH SOCIETY

The students are encouraged and given the opportunity to actively participate in changing the mindset about the importance of water conservation and good water management, starting with their school and family.



WATER IS LIFE



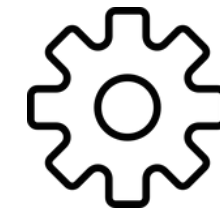
PREVIOUS KNOWLEDGE

What do teachers need?

- Knowing the specific contents of their subject.
- Medium-low digital competence.
- Medium-high level of programming.

What do students need?

- Basic contents in each subject.
- Internet connection at home.
- Medium-low digital competence.



MATERIALS

- Electronic devices: tablet /phone/ microphones, headphones and computer.
- Stationery to create posters, sketchnotes etc.
- Pots or school garden, basic gardening tools.
- Simple rainwater collector (optional).
- Recycled plastic bottles, strings, scissors.
- 3D printer (optional).
- Arduino programming set.
- Soil moisture sensor.
- Wi-fi connection extending to the garden if applicable.
- Apps: Canva, Mentimeter, Padlet, Zoom, Scratch, quiz maker/ any assessment tool (e.g. ThatQuiz, EdPuzzle ...), qr-code generator, Voice Recorder or any other voice recording tool for podcasts, video recording tools (Animoto, StopmotionStudio App ...), Tinkercard.
- Pre-prepared digital educational material (e.g. safe internet sites, interactive worksheets, TedEd videos ...).

TASK NAME: WATER DYNAMICS

SUBJECT: BIOLOGY

BRIEF DESCRIPTION

12-year-old students carry out curricular experiments (in the school garden to explore soil & water relationship: setting up natural soil filters of water, determining soil porosity, determining types of soil ...).

To promote inter-generational transfer of knowledge, they present their findings to 14-15-year-old students (by recording short tutorials [Tutorial 1/](#) [Tutorial 2](#)) who in turn conduct experiments with curricular water cycle theme, using a plastic bag or a recycled-bottle terrarium (preferably adding soil as a variable) & if possible, film their work ([Tutorial 3](#)).

Younger & older students are encouraged to film short tutorials in groups, using a simple video recording tool or StopMotionStudio App.

SUBTASKS (NUMBER OF SESSIONS)

- Learning about the content. (2)
- Experimental work. (2)
- Producing short digital tutorials & presentations. (3)



TASK NAME: THE VALUE OF WATER

1 / 3

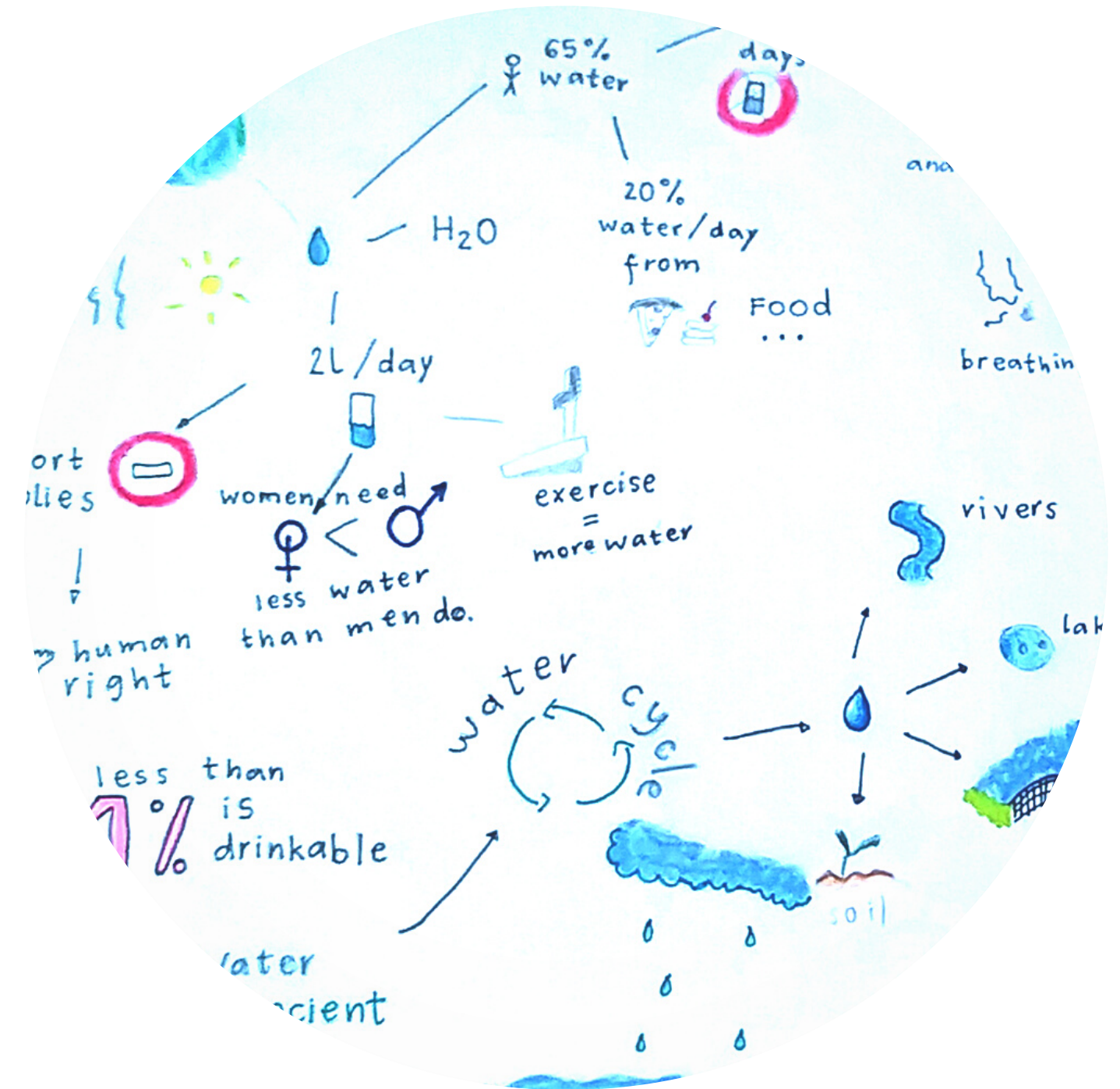
SUBJECT: BIOLOGY, ENGLISH & CLASS SESSION

BRIEF DESCRIPTION

At Biology the students calculate and critically analyse data about their family's water footprint (using pre-prepared digital app or paper version). They browse safe internet sites to learn about water protection agencies in their country & their agendas. They collaborate in groups to propose practical solutions for saving water at home/ school & publish their ideas on Padlet. Using Padlet voting tool they vote for best water-saving ideas (at school) to propose to the school management (problem-based).

Simultaneously at English lessons, pre-prepared blended learning environment (digital worksheets, interactive videos, safe internet sites) exposes the students to language situations and curricular based vocabulary on climate change, with emphasis on the importance of water for our survival on the planet. The students make sketchnotes/ mindmaps while learning about the topic (by which they also acquire & practise various linguistic structures such as Passive/ Gerund etc.). Highly-motivated students are encouraged to record podcasts about the learning content. Mentimeter/ Kahoot/ Padlet are easy-to-use tools for instant class feedback & engagement throughout the learning path; as well as any other educational tool for feedback (exit slips or digital feedback tools such as ThatQuiz, EdPuzzle etc.)

Simultaneously during Class sessions the students explore easy 3R ideas connected with good water management & film short tutorials (Tutorial 4/ Tutorial 5): recycled self-watering pots & rain water collectors for the school garden (project-based).



TASK NAME: THE VALUE OF WATER

2 / 3

SUBJECT: BIOLOGY, ENGLISH & CLASS SESSION

SKETCHNOTING

The students make sketchnotes to visually structure their notes, making them easy to remember & allow for deeper understanding of the given topic. Studies show that sketching information motivates innovation and creative thinking, by making the topic concise & easy to understand.

ENG SUBTASK (NUMBER OF SESSIONS)

- Pre-prepared digital material including feedback. (4)

*Samples of blended-learning material: Sample 1

Sample 2

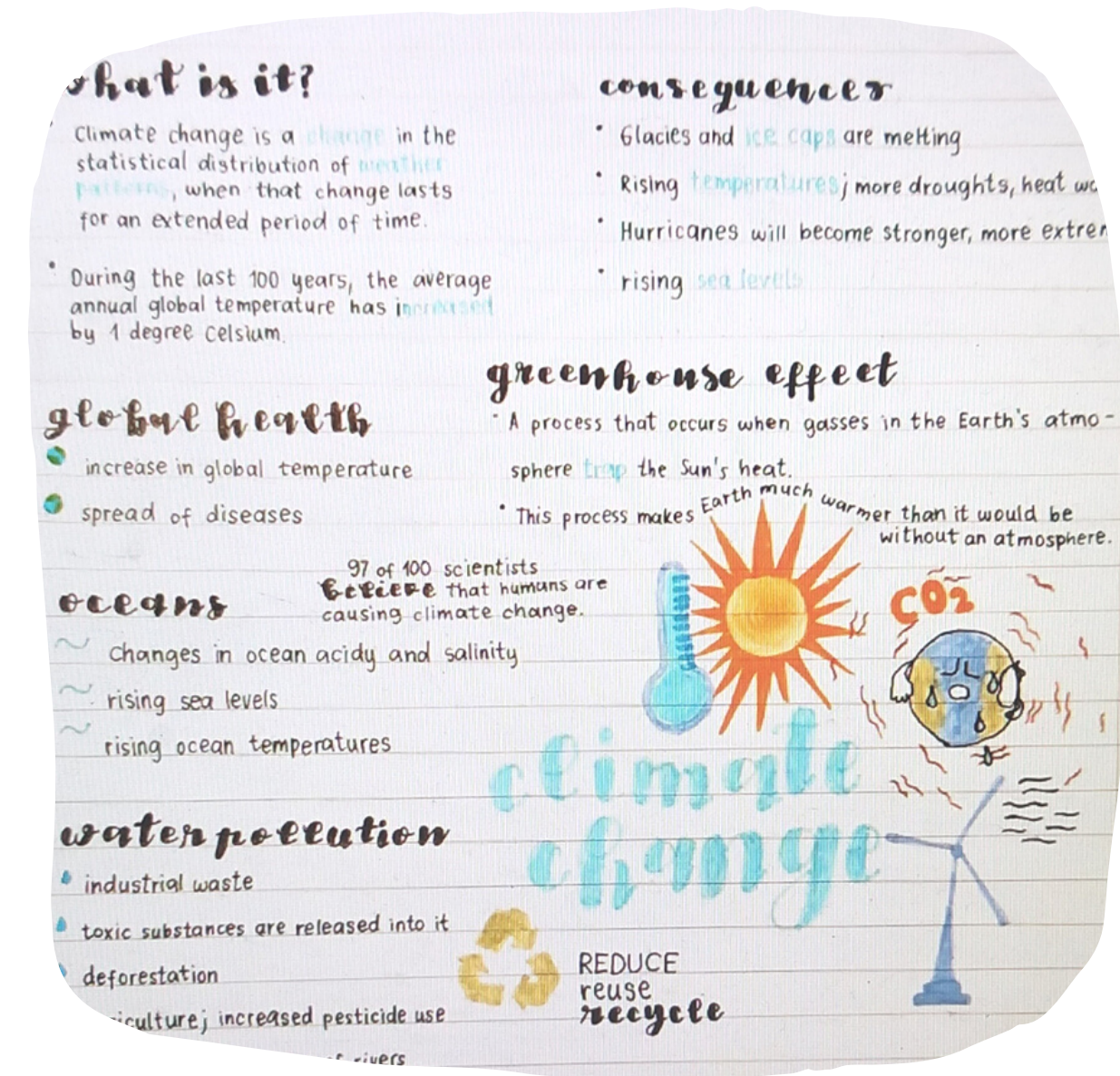
Sample 3

Sample 4

Sample 5a, Sample 5b

- Short sketchnoting workshop. (1)

- Students create sketchnotes, podcasts - can be assigned as homework. (2)



TASK NAME: THE VALUE OF WATER

3 / 3

SUBJECT: BIOLOGY, ENGLISH, CLASS SESSION

BIO SUBTASKS (NUMBER OF SESSIONS)

- Searching internet sites for water protection agencies & their agendas. (1)
*Samples of blended-learning material: [Sample 1](#), [Sample 2](#)
- Instructions, filling in the questionnaire (can be set as homework assignment). (1)
- Discussion, analysis of results in the classroom. (1)
- Padlet - brainstorming, developing ideas, voting. (1)

CLASS SESSION SUBTASK (NUMBER OF SESSIONS)

- Research, materials. (1)
- Project work & filming short tutorials in groups. (2)
- Presentations. (1)



TASK NAME: ENGAGING IN CLIMATE ISSUES: TEXT, SPEECH, VISUAL.

SUBJECT: ENGLISH

BRIEF DESCRIPTION

The students demonstrate blended learning experience at Biology and English by writing a comprehensive essay in English (e.g. letter to politicians) which they later turn into an engaging speech (oral presentation) with accompanying visual (poster, infographics ...). Such presentation can be graded. Using this activity they show their understanding of the topic, acquired vocabulary & also their critical attitudes towards pressing climate issues with emphasis on saving water.



SUBTASKS (NUMBER OF SESSIONS)

- Setting the standards & writing/ oral presentation guidelines together with the students. (1)
- Preliminary drafts with peer grading & teacher comments. (1-2)
- Essay writing; the students can use their pre-made sketchnotes. (1)
- Preparing & showcasing oral presentations with accompanying posters (some can be done as part of homework). (2-3)

TASK NAME: INTERACTIVE ANIMATION/GAME (WATER DAY)
SUBJECT: COMPUTER STUDIES AND/ OR CLASS SESSION

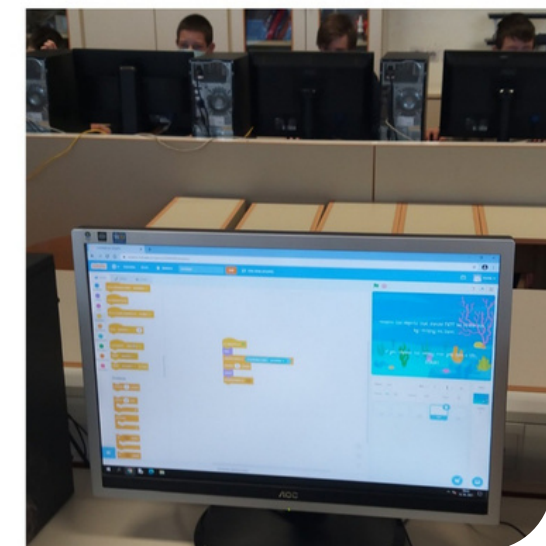
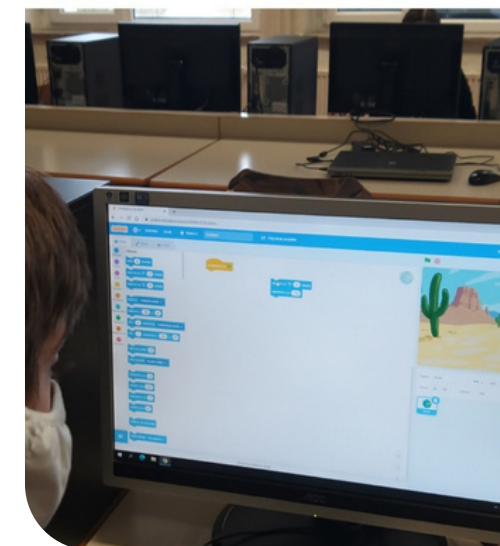
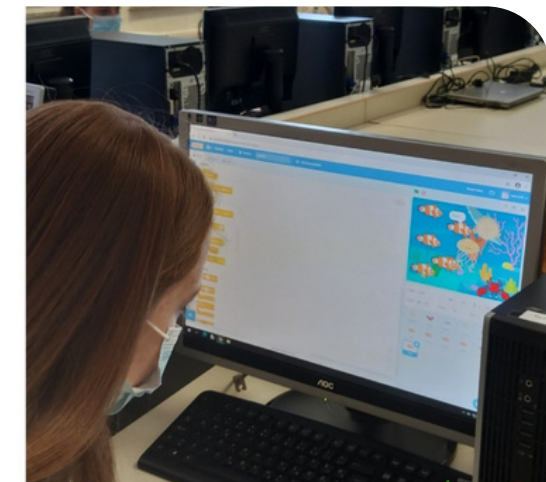
BRIEF DESCRIPTION

Students develop a simple interactive animation/ game with Scratch which includes contents the students themselves choose in order to celebrate World Water Day in a digital & creative way. The main guideline is to highlight the importance of fresh water and to advocate for the sustainable management of freshwater resources.

*Students who like to express themselves in English or other foreign language can prepare the script in their chosen foreign language.

SUBTASKS (NUMBER OF SESSIONS)

- Demonstration workshop using pre-made Scratch template. (1)
- Brainstorming & implementation. (2 or more)
- Presentations. (2)



TASK NAME:
SUBJECT:

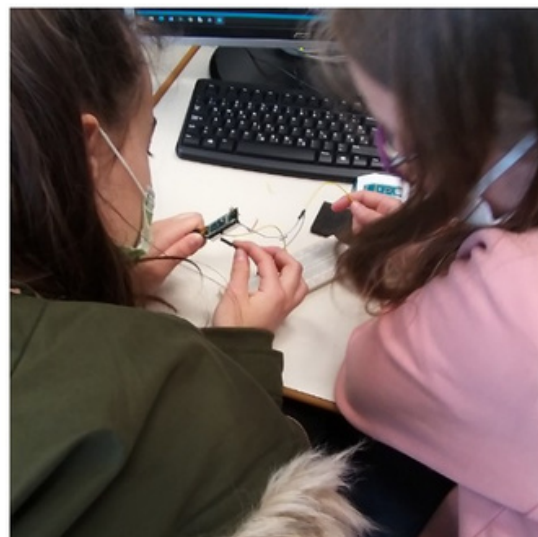
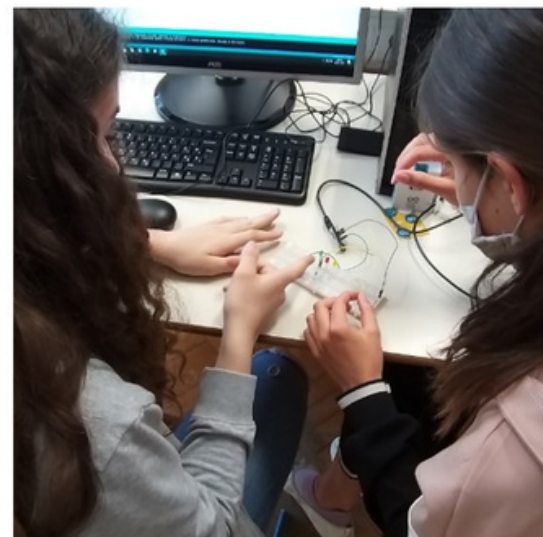
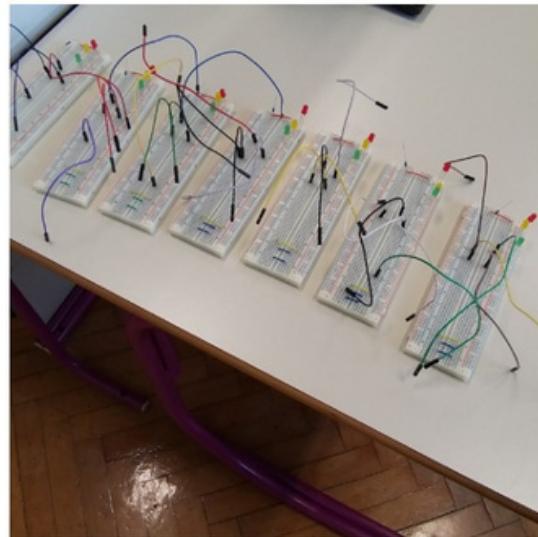
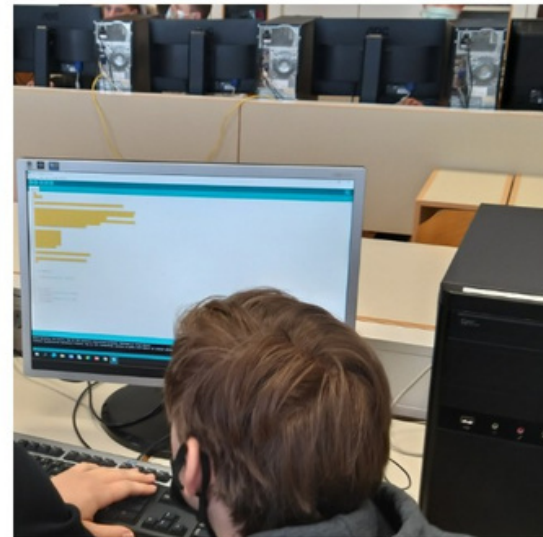
FIRST CODING STEPS TO SAVE WATER
COMPUTER STUDIES AND/OR CLASS SESSION

BRIEF DESCRIPTION

Students learn how to write a simple code to activate a light by which they get some basic understanding of how codes for detecting low soil moisture (using soil sensors) operate.

SUBTASKS (NUMBER OF SESSIONS)

- Explanation of basic coding steps & tools. (2)
- Working with a simple code. (2)
- Feedback. (1)
- *Coding activities video available [here](#).



TASK NAME: FIRST STEPS WITH OPERATING SOIL MOISTURE APP
SUBJECT: COMPUTER STUDIES AND/ OR CLASS SESSION



BRIEF DESCRIPTION

Students learn how to observe, recognize and read data that is important for effective water management. They prepare an experiment where the growth of the plant is first monitored by the probe under external conditions. After a certain amount of time the plant is moved indoors into the classroom, where it can be wrapped in foil and not watered at all for the same amount of time as it was left outdoors. The experiment tests the predicted change in soil moisture.

SUBTASKS (NUMBER OF SESSIONS)

- Observing data in a longer time period.
- Reading data. (1)
- Conclusions, discussion. (1)



TASK NAME: 3D PRINTING OF A SUSTAINABLE WATER SPIKE

SUBJECT: COMPUTER STUDIES

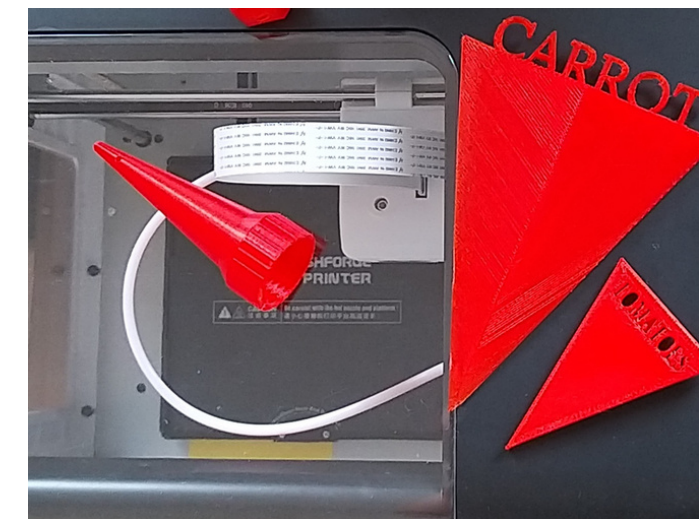


BRIEF DESCRIPTION

Students learn the basics of designing with Tinkercard application which allows 3D print of a designed product. They design simple crop pointers for the school garden with the names of the crops that were planted and print them with the 3D printer (acquired during Erasmus+ project). The students who are interested in the topic are invited to participate in a more challenging assignment - designing & printing a simple water spike which can be placed on a self-watering recyclable plastic bottle and inserted into the school garden soil to regulate watering.

SUBTASKS (NUMBER OF SESSIONS)

- Learning the basics about operating a 3D printer & Tinkercard app. (1)
- Designing garden crop pointers. (1)
- Presenting 3D designs. (1)
- *3D printing activities video available [here](#).



BRIEF DESCRIPTION

Collaborative infographics using Canva app/ mindmaps using Coggle app templates are prepared by the students in pairs to conclude a long-term activity "Water is life." This activity is highly motivating due to its collaborative nature and it allows the students to creatively summarize & display their learning experience.

SUBTASKS (NUMBER OF SESSIONS)

- Short presentation of Canva template for the students and discussion about image Creative Commons, copyright & data protection. (1)
- Gathering material (notes, sketches, texts ...) to work with. (1)
- Students collaborate in digital environment to produce simple digital infographics. (1-2)
- Infographics are displayed at school or on-line (Erasmus blog, webpage).

YOU CAN BE A HERO TOO

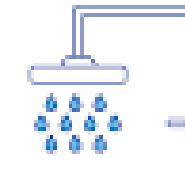
HELP SAVE THE EARTH

You can start by

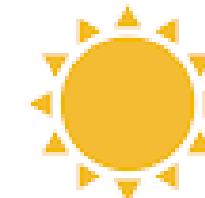
RECYCLING AND REUSING THINGS



TAKING SHOWERS NOT BATHS



USING ENERGY FROM THE SUN



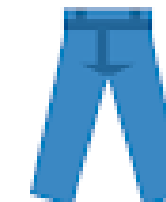
CAR SHARING /COMMUTING



USING LEAD-FREE PETROL



BUYING USED CLOTHES



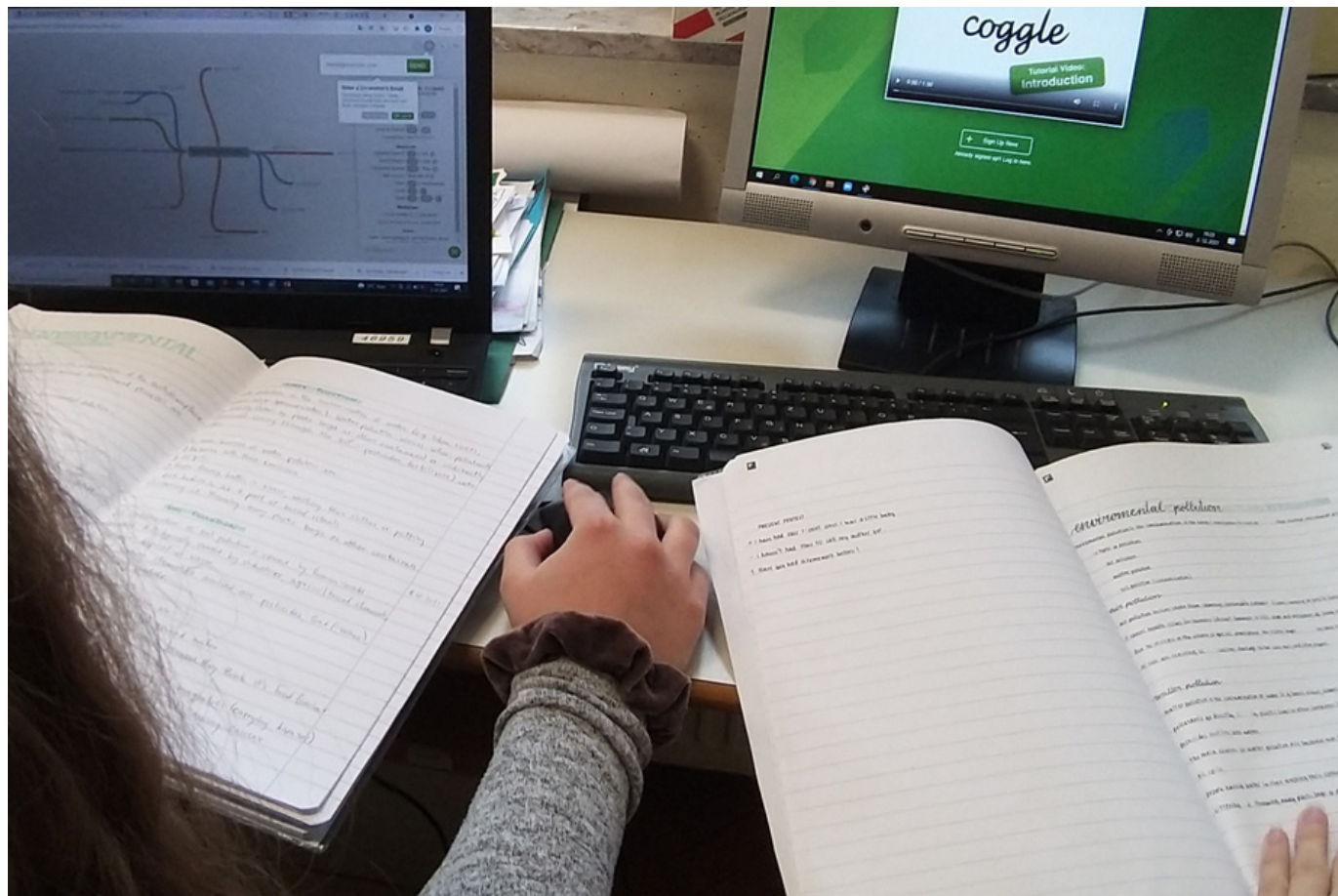
Together we can succeed

TASK NAME: SUMMARIZING WITH INFOGRAPHICS & COGGLE
MINDMAPS: ENGAGEMENT & COLLABORATION
SUBJECT: ENGLISH

2 / 2

The same "summarizing" activity can be carried out with simple-to-use Coggle mindmapping tool. The students can use each other's notes or mindmap drafts and convert them collaboratively into one digital version with easy-to-use templates & colourful graphics.

*The students also shared their visions of a planet they would like to live in with their Erasmus+ project Spanish peers. Their views on ideal planet are available [HERE](#).



TASK NAME: COLLABORATIVE DIGITAL PLANTING CALENDAR 1/3

SUBJECT: BIOLOGY/SCIENCE, GEOGRAPHY, COMPUTER STUDIES/ CLASS SESSION

BRIEF DESCRIPTION



Autonomous & collaborative learning: Students research (by asking their parents, grandparents or searching safe internet sites) how to plant different garden crops and how much watering different plants need. In smaller groups (3-4) they note essential data and make short video clips while planting (during Class session & or at Biology). Biodiversity presentation/ material can be included in the calendar (Sample materials: [Sample 1](#)/ [Sample 2](#)).

At Computer Studies (or Class session) they collaborate in Canva template to produce a simple planting calendar with pictures, drawings, essential data and qr-coded video clips of planting with explanations. Drawings can be done at Art.

At Geography they produce climographs with raining seasons for their region which they include in the calendar.

Students who like to express themselves in English or any other foreign language can prepare data &/or video clips in the chosen foreign language.

*Activity can be done collaboratively (to save time) with different age groups of students (the ones responsible for tending the school garden for example), so that they transfer "gardening" knowledge to each other.

TASK NAME: COLLABORATIVE DIGITAL PLANTING CALENDAR 2/3
SUBJECT: BIOLOGY/SCIENCE, GEOGRAPHY, COMPUTER STUDIES/ CLASS SESSION



GEO SUBTASKS (NUMBER OF SESSIONS)

- Explanation of the learning content. (2)
- Creating climographs for different regions of the country. (1)

BIO SUBTASKS (NUMBER OF SESSIONS)

- Explanation of the main idea and dividing assignments to groups of 3-4 people. (1)
- Research of information about planting, set as homework. (2)
- Review of the gathered information, teacher's comments. (1)
- Filming short video clips. (1)

TASK NAME: COLLABORATIVE DIGITAL PLANTING CALENDAR 3/3
SUBJECT: BIOLOGY/SCIENCE, GEOGRAPHY, COMPUTER STUDIES/ CLASS SESSION

ICT/CLASS SESSION SUBTASKS (NUMBER OF SESSIONS)



- Selecting, editing and uploading image content to Canva calendar template; collaborative group task. (2-3)
- Editing short videos & qr-encoding. (2-3)
- Presentations (can be done at class session). (1)

*Full version of the sample calendar is available [HERE](#).



Co-funded by the
Erasmus+ Programme
of the European Union

This project "esGarden: School Gardens for Guture Citizens ERASMUS+ / 2018-1-ES01-KA201-050599" has been funded with support from the European Commission.

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